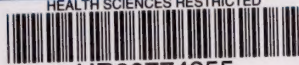


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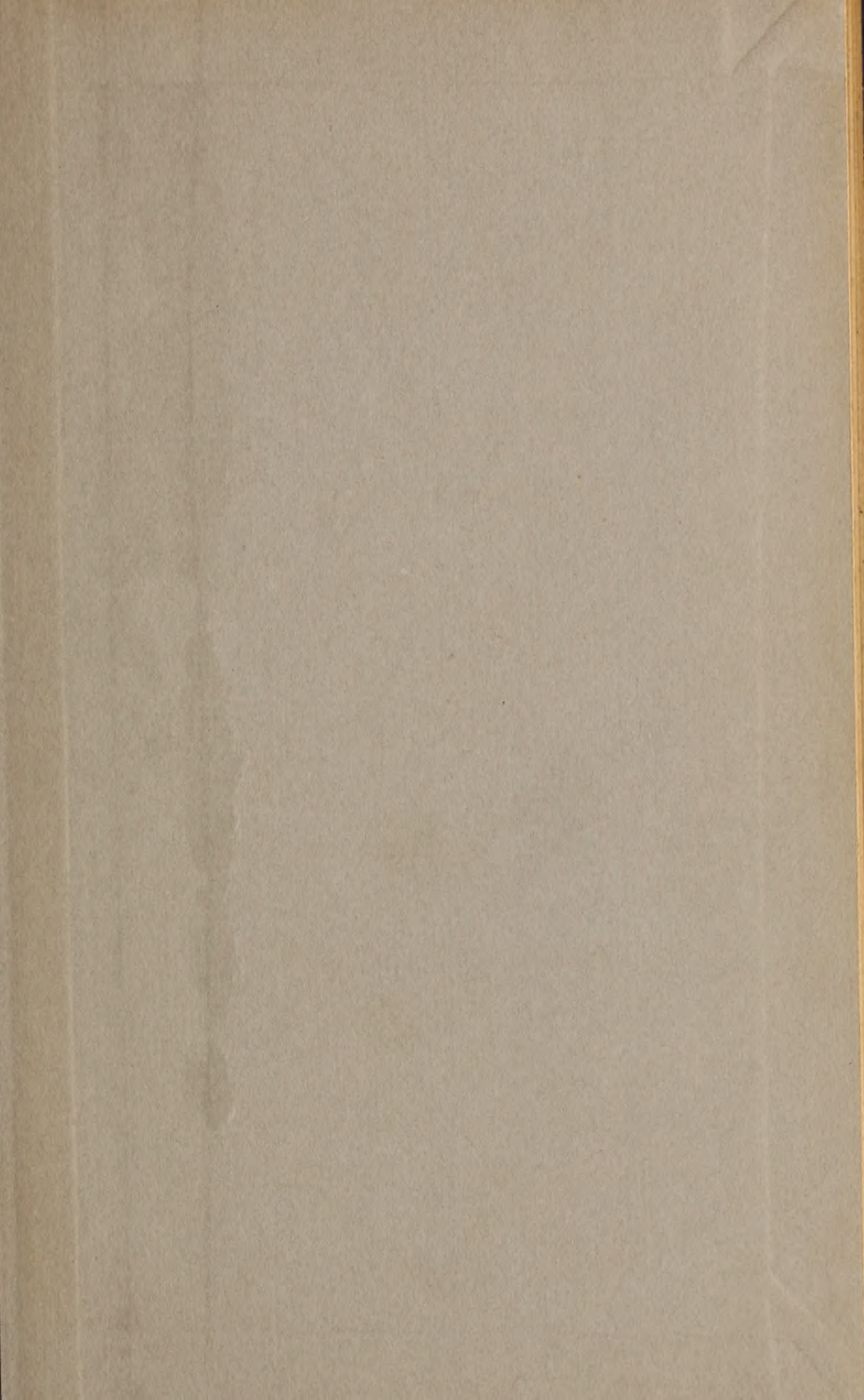
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CONTRIBUTIONS.

BAND ATTACHMENTS.

BY GRANT MITCHELL, D.D.S., CANTON, O.

WHEN a Bridge-piece is to be attached to an anterior tooth, the crown of which is so sound that excision and crowning are not justifiable, I make a band as described in the accompanying illustration :

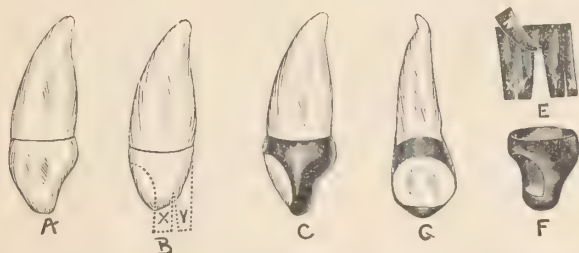


Figure A represents a cuspid, to which I wish to anchor one end of my piece. B, the same with cusp squared and sides ground to receive the band. The dotted lines representing the band fitted at the neck of the tooth. The labial side cut out, and the sides and back extending so far below the cutting edge that when the ends XX (Fig. E) are bent in they will exactly meet at G.

Fig. E shows the palatal side of the band, properly cut for

correct adaptation. The ends, XX, are gently malleted to position, using long handle plugger (No. 304) and lead mallet. YY are then bent and malleted forward to overlap the ends, XX, and Z to overlap all.

The band is now carefully removed and large pieces of 20 k. gold solder are placed over the joints on the inner side and fused in the flame of a spirit lamp, the solder sinking and leaving the inner surface of the band comparatively smooth. Contour the outside with a small, fine, corundum wheel, and you will have a beautiful shell or semi-cap shown at Figs. F, C and G, useful alike on incisors or cuspids. In preparing the tooth, grind cusp and sides, part way up, square. Cut out labial side of band so as to leave the ends, XX, extended slightly forward of the labio-cutting corners. Split the band, between X and Y, at the palato-cutting corners and a trifle above the end of the tooth. Make the "V," at the back, full wide; because the flap Z will cover any space.

PERFECT OCCLUDING GOLD CROWNS.

BY W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, O.

OFTEN cases present that irregularity of occlusion renders the ordinary use of the various dies in the market useless. Among the various expedients in such cases, the following may suffice:

Fit the band to root and trim on the occluding edges, with flat file, to line where side walls begin to curve upon occluding surface. Return band to root and fill to overflowing with plaster Paris well mixed so as to set quickly. Have patient close teeth together naturally. When plaster is hard, remove band and trim, so as to make presentable surface, retaining the imprint of the occluding cusps. Use this model for making an impression in Mellotte Moldene, from which make a fusible metal die. Perfectly adjust to the band the resulting swaged cap and solder. Finish. Result, a perfect occluding crown.

Another way. Fill band with moldene or plaster and proceed to get "bite" as before, then insert this model into fusible metal almost cold and drive gold plate into this mold with lead.

THINGS PRACTICAL IN DENTAL PRACTICE.

BY J. G. TEMPLETON, D.D.S., PITTSBURGH, PA.

At the Ohio State Dental Society Dr. Templeton gave an interesting talk on the above subject. Some of the ideas given were as follows:

Instrument Polisher.—Burnishers give better results when new than when tarnished, and it is essential to keep them finely polished. In fact, it is desirable to keep all instruments polished. An efficient device for polishing can be made by fastening a piece of sole-leather, or a piece of razor-strop, on a block of wood of suitable size, and placing a little diamantine powder on the surface of the leather; then polish instruments by rubbing briskly on this surface. Diamantine is used by jewelers and can be obtained from them or from their supply houses.

To Make Moisture-Tight Gutta-Percha Fillings.—Take common resin and dissolve in chloroform to desired thickness; place some of this in the prepared cavity, and by the time the gutta-percha is heated the varnish will be in proper condition through evaporation of the chloroform. The varnish should not extend to the cavity margins. Apply the gutta-percha as usual, and pack with cold instruments. The cold instruments do not adhere as warm ones do. When completed the filling may be pared off to the proper contour by means of a heated thin-blade instrument, and the filling smoothed by the application of eucalyptol or oil of cajuput.

To Duplicate Models and Impressions.—Take printers' roller composition, melt in a water-bath until dissolved. Grease the model slightly with lard, and place it the same as if to mould a metal die, cover with a metal ring, (a tin can opened at both ends will do) and pour the melted composition over the model. Let this stand over night. By morning the material is hardened and the model can be withdrawn. The composition being elastic it retains its shape, and a hundred models may be poured if necessary. Impressions may be duplicated in the same manner, by using impression instead of model.

A Useful Clamp.—Where the lower teeth have short and tapering crowns and it is impossible to make an ordinary clamp hold, use the Lyder clamp, and you will be successful.

To Dry a Cavity before Filling.—After applying absolute alcohol to the cavity, use a solution of sandarach and ether to line the cavity; dry this with hot air, which forces it into the ends of the tubules, completely sealing them; then proceed with the filling.

In Ligating Rubber Dam, tie a small bead on the ligature, which, when tied around the tooth, will prevent the dam from coming over ligature; the bead should be on lingual side of tooth.

In Articulating Teeth, always take an impression of lower teeth when making an upper set, and in taking the bite have wax trimmed to show the length you wish the teeth to be, and bite into it just sufficiently to show the tips of cutting edges and cusps where the model made from lower impression can be placed in proper position, etc. For double sets, make wax models for contour in restoration of features and to show length of teeth, and then try these models in the mouth, being careful to see that you have it right; then make plaster articulating models for setting up the teeth, setting up the lower ones first against a plaster articulating plate, its articulating surface corresponding with the articulating surface of lower wax model, then lay aside the plaster articulating plate and put the model of upper jaw in its place, and set the upper teeth to the lower ones. I adopted this method about twenty-four years ago, and in that length of time have not had to grind a cusp off to let front teeth come together, and can say the same for the method of making an upper set alone, which is all due to the care taken to get a correct bite in such cases by taking an impression of lower teeth, which takes a little more time, but is all remunerated for in the satisfaction one gets from seeing that there is nothing more to do when the piece is placed in the mouth with masticating surfaces perfect, and no need of any "grinding in" to get the front teeth together.

To Prevent Plaster Adhering to Rubber Plates.—Coat the model with a thin solution of soap and water just before packing the case.

A Method of Securing Perfect Impressions for Partial Upper Plates.—To take an accurate impression of the mouth for a partial upper set of teeth, smear plaster over the roof of the mouth with the finger, take a string about one foot in length, tie the ends together, put the tied end of the loop into the plaster

on the roof of the mouth, and add more plaster to thoroughly embed the knot, leaving the loop of string hanging down. In placing the plaster in the mouth care should be taken to have it come full half way over the grinding surfaces of molars and bicuspids and cutting edges of the front teeth, then trim the plaster and varnish the trimmed surfaces. The plaster should be so trimmed that it will fill up fully one-half of all spaces between the teeth, then cover all the remaining surface of the mouth and teeth with plaster, being very careful to have the teeth well covered and spaces filled in putting on plaster for the buccal and labial surfaces. When set, the plaster impression readily parts where it has been varnished, the palatal portion is dislodged with the help of the string used, and the pieces are then placed together and model made. If a tooth is irregular, use modelling compound about it and trim suitably; then apply the plaster. When removing it breaks where joined; then remove compound, place in position in the impression and pour the model.

A METHOD FOR RESTORING THE BITE WITH GOLD CROWNS.

BY H. W. ARTHUR, D.D.S., PITTSBURGH, PA.

GREAT stress is constantly laid on the careful fitting of the band; this is altogether proper, but *any* bite will do, judging from observation, so that it does not interfere with the occlusion of the other teeth. Apart from the importance to the patient of having the bite *restored*, which is accomplished by this method, the force is in the right direction, and there is no leverage exerted which has a tendency to loosen the crown and, it may be, expand a well-fitted band.

Having the band fitted and not interfering with the occlusion of the teeth, the bite is taken, preferably with Modelling Composition, which can be hardened with cold water while in the mouth, so that the band can be replaced exactly, should it not draw out with the impression. When in the articulator it should be an exact working bite. Place sufficient wax in the band, now in the articulator, and close; this will give the bite in the wax; trim to the band, and give such artistic shape as desired, being careful to leave the bite proper intact. Remove from the articu-

lator, (this, by the way, can be done more readily if the band be filled with wax, leaving only a slight rim, before placing in the articulator). Take rubber hose about an inch in length and the same in diameter, obstruct the lower half, mix and fill the upper half with Teague's Impression Compound, while in a creamy state, and imbed the wax bite until it slightly covers the band. If the depression in the bite is deep, it may be well to place a little of the compound in it first, to avoid having an air space. When set, the band and wax bite is removed, and the Compound thoroughly dried. This can be quickly done by putting it into a melting-ladle. A change of shade all over will indicate that the moisture has been driven off. Using the rubber ring, dies are made of Melotte's Fusible metal. These should be exact and well defined.

A piece of thin, pure gold plate, of sufficient size, is pressed by the fingers, and burnished on the male die, the corners clipped, ends folded in and the sides over, to prevent drawing the gold over the cusps. Strike up once on the dies, and trim off the surplus with light scissors. Place all the parts in the articulator, gold cap bite over the wax bite, close the articulator with slight pressure, burnish the cap down around the band and make sure that it is exactly in place. A trifle of flux wax may be placed where the cap and band meet. Invest, allowing the investment to touch the band at one or more points, so that should it be displaced when the wax is being removed from the inside, it may be exactly replaced. Solder and finish.

Any slight error in manipulation can be noted by placing in the articulator and can be corrected before placing it in the mouth.

UNNECESSARY BURDENS OF THE DENTAL STUDENT.

BY L. P. HASKELL, CHICAGO.

THE dental student has all he can do to "pull through," even under the most favorable circumstances. With a large proportion of the studies of the medical student, he has those pertaining especially to dentistry. To this is added the really practical part of the course, the clinical demonstrations of the infirmary and laboratory. Of the latter there is not enough to begin to furnish the necessary instruction to qualify the student for successful

practice. This being the condition of things, instruction should be simplified as far as possible, so as to be readily comprehended.

Prosthetic Dentistry cannot be taught in the lecture room. As a rule, too much of the student's time is taken up with details that cannot be comprehended except with an ocular demonstration in the laboratory. Not only this, but much of the instruction is of such a complicated nature as to fail to enlist the attention and interest of the student; in fact, tends to discouragement.

If the lecturer could spend half the time spent in the lecture room, in practical demonstrations in the laboratory, aided by demonstrators of long experience, instead of young and inexperienced ones, the student would graduate far better qualified to practice than under the usual régime.

There is many a graduate who can describe the anatomy of the foot, who is unable to make a successful rubber denture.

It has seemed to me that if the instruction in Prosthetic Dentistry could be relegated to the last month or six weeks of the term and the students kept in the laboratory steadily at the bench, they would learn four times as much as under present methods.

These conclusions have been reached after forty-seven years experience in this specialty; seven years as lecturer in two dental colleges, and incidentally in giving clinics in three other colleges, and finally in conducting the first Post-Graduate School of Prosthetic Dentistry, with students from nearly every state in the Union, and from foreign countries. Most of these students were practicing dentists, many of whom were graduates of dental colleges, and all are united in saying that their month's instruction was far ahead of what they had received in college or from preceptors, in thoroughness and simplicity of methods.

In text books the student is burdened with methods perplexing and unnecessary. For example, in a recent work, "Questions and Answers," I find the following pertaining to the making of dies:

1. How is the die for swaging obtained? *Ans.* By moulding the model in sand, and pouring in melted zinc.
2. What is the best sand for moulding? *Ans.* A mixture of new and old brass-moulder's sand.
3. What other moulding materials are employed? *Ans.* Marble-dust, tripoli and whiting.

4. What properties should such materials possess? *Ans.* Be fine enough to copy closely and smoothly, yet coarse enough to permit escape of vapor; contain clay enough to give coherence without packing too compactly.

5. How should sand be moistened? *Ans.* With enough water only to prevent its crumbling; too much water will cause sand to cling to the metal, and cause "flowing" of the metal.

6. How should sand be manipulated? *Ans.* Packed so as to give an even, firm surface, but not so compactly that vapor cannot escape when molten metal is poured into the mould.

7. What is the effect of the vapor not escaping through the sand? *Ans.* It passes through the molten metal and renders the die imperfect.

8. What may occur if metal chills on contact with surface, next to the sand, and remains molten in interior of the die? *Ans.* The thin shell, forming surface of die, will press upward and make a defective die, without any sign of flaw on its surface.

9. What will prevent this, and also any flowing of the metal? *Ans.* By using sand not too rich in clay, nor too fine, nor too damp, and not packed too firmly; also by drying mould, or *mixing sand with oil or glycerine*. (Why not do this in the first place?)

10. When may fine sand, firmly packed, be used? *Ans.* When mould is dried and heated to temperature of 250°.

11. When mould is damp, at what temperature should the metal be poured? *Ans.* At the lowest consistent with proper fluidity.

12. What is the proportion of oil or glycerine to be used in sand? *Ans.* One quart of oil to peck of sand.

13. What are the objections to oil-mixed sand? *Ans.* *Soiling hands and disagreeable odor!*

14. What is used to dust over surface of mould before moulding? *Ans.* Soapstone, rotten-stone, and charcoal powder.

15. How is sand mould for a die made? *Ans.* The model is placed on flat surface of moulding bench, with face up and heel toward operator; over it the moulding flask is placed; a small quantity of sand is sifted over surface of model, and the flask filled around and full of unsifted sand, that it may not pack too tightly; when flask is full and sand sufficiently packed it is leveled off and turned over, exposing base of model, and a pointed instrument passed around to make a slight bevel in the sand; the sand is then slightly condensed with fingers and loose particles brushed away; the model is then lightly tapped with the handle of an instrument, or a gimlet is screwed into a small piece of wood inserted into the plaster, in center of base, when pouring model, for the purpose of loosening it in the sand, preparatory to throwing it out on an inverting flask, with a quick movement, or drawing it from the sand with the gimlet; having a bed of sand on which the model will fall, prevents injury to it, when it is thrown from the mould.

16. What are moulding flasks? *Ans.* Wooden box, six or eight inches square, with top and bottom boards for die; and a stout iron ring, four by two and one-half, for counter-die, or the form known as Bailey's moulding flask.

17. How should the plaster model be placed in the sand? *Ans.* So that

the center of plate to be swaged on it shall be directly under the metallic cone which is placed on base of die, in order to distribute the force of blows from hammer equally.

18. How is the plaster model protected in ramming the sand over and around it? *Ans.* By having the sand at least an inch deep over the surface and around the sides, and compressed with the fingers.

19. What is the next step in obtaining a die? *Ans.* To pour metal into the sand mould.

20. What metals are used for dies? *Ans.* Zinc and Babbitt metal, also fusible metal; the latter for partial counter-dies.

21. What metal is used for counter-dies? *Ans.* Lead; or for Babbitt metal, an alloy of lead and tin.

22. What is the heat required for melting zinc? *Ans.* 770° F., but should not be overheated.

23. When zinc is used, how many dies and counter-dies are necessary? *Ans.* Two dies and two counter-dies; the last for finishing.

24. How is the counter-die obtained? *Ans.* By placing die in center of flask, and building up sand around it until the swaging surface, or face only, is left exposed; over this an iron ring, from half to three-quarters larger than face of die is placed and the edge slightly embedded in the sand; the lead or alloy composing the counter-die metal is then melted and poured at the lowest possible temperature over the face of the die, and the flask filled as far as it is necessary to give a certain depth to the counter-die.

25. What is the composition of Haskell's Babbitt metal? *Ans.* Copper, one pound; antimony, two pounds; tin, eight pounds.

26. What is the composition of the counter die for a Babbitt metal die? *Ans.* Lead, seven (6) parts; tin, one part.

27. What is claimed for the Babbitt metal die? *Ans.* Non-shrinkage. (Is this all?)

28. What are the advantages of zinc? *Ans.* Little shrinkage, hardness, easy fusibility!

29. What commends lead as a counter-die? *Ans.* Softness and low fusing property.

30. If die is too soft and becomes flattened in swaging, what is the effect on the plate? *Ans.* It will bear too hard on palate, and rock.

31. What may correct this? *Ans.* The use of a number of dies; but the same will not correct the effect of great shrinkage in metal of die.

32. What will correct this latter defect? *Ans.* The use of a die of softer non-shrinking metal (Babbitt) following one of the harder shrinkage metals. (If the use of the Babbitt is good for the final swage, why not for the first?)

33. Should the swaged plate fit the plaster model or the die? *Ans.* The die. (Both.)

Here are 22 questions and answers. There are thirty more upon the same subject, viz: the use of zinc dies, and many of them simply indicate the difficulties encountered in using zinc.

In the following 22 questions and answers I will cover the same ground, and guarantee, if carefully followed, the student

will be saved all the petty annoyances from the use of zinc, and successfully make dies and swage plates that will *fit*, no matter how difficult the case.

1. What changes are necessary in the plaster cast for a full upper set?

Ans. The palatal bone is the only portion of the upper jaw that never yields to pressure, whereas the alveola is liable to change, and in a majority of mouths does to a greater or less extent. Unless provision is made to prevent it the plate will rest on the palate and rock.

With a thin film of wax raise the surface from near the anterior ridge to near the posterior margin of plate.

2. Are the vacuum cavities, so commonly used, necessary?

Ans. If the plate fits so that it comes in close contact with the membrane there will be all the adhesion that is necessary, no matter what the shape of gums and palate.

3. How should the model be shaped?

Ans. Flaring, so it will drop from the mould, as it will find its way out, and not mar the mould as is liable if lifted.

4. When are "cores" needed, how made, and how used?

Ans. In a very small per cent of cases, the process is so prominent the model will not draw from the mould without removing a portion of the sand. The "core" is made by oiling the surface of the model as far as undercut; place on a slab, and apply $\frac{1}{8}$ inch in thickness, equal parts of plaster and *asbestos*, the latter to prevent the core from shrinking and cracking, and breaking in using if more dies are needed; dry *thoroughly*, and mould with the core in place; as it drops from the mould replace and cast the die.

In partial lower sets, when needed, the core must be made in two sections; the first extending from the posterior corner, two-thirds across the model; when hard, jar loose and make the other section from the other corner, to meet the first, and proceed to mould after drying as in the upper case. The core can be dried rapidly over the gas burner.

5. How should the moulding sand be prepared?

Ans. Mixed with sweet oil to the same consistency as when water is used.

6. What are the advantages and disadvantages of oiled sand?

Ans. It can be used many times without re-oiling; there is no danger of "blow-holes" in the die, as when water is used; can be packed hard, so as to make a better mould. It has no disadvantages.

7. What are the qualities requisite for dental dies?

Ans. Non-shrinkage, hardness, toughness, smoothness, and melting at a low temperature.

8. Why melting at a low temperature?

Ans. So that oiled sand can be used. Zinc is poured so hot the oil is burned, and much odor results.

9. What alloy of metals has these qualities?

Ans. Babbitt metal.

10. Are there different formulas for Babbitt metal, and what one is suitable for dental dies?

Ans. There are many formulas, and in order to cheapen it, lead is substituted for the tin, which ruins it for this purpose. The formula which has stood the test is—copper, 1 part: anti mony, 2 parts; tin, 8 parts; melted in the order named.

11. If it lacks fluidity when melted, or is brittle, what is the remedy?

Ans. Add more tin.

12. What is used for a counter-die for Babbitt metal?

Ans. Lead, 5 lbs.; tin, 1 lb.

13. Why cannot pure lead be used?

Ans. It melts at a higher temperature than Babbitt metal, and when poured upon it adheres.

14. What precaution is necessary to further prevent adhesion?

Ans. Coat the die with whiting, and stir the lead until it cools somewhat.

15. Is it necessary to put anything on the model before moulding?

Ans. If the sand is freshly oiled, sometimes soapstone is necessary.

16. What sort of moulding rings are needed?

Ans. Made of boiler-iron. 5 inches in diameter; 3 inches high.

17. How should the mould be made?

Ans. Place the model inside the moulding ring; throw in the sand around the sides, placing the fingers on the model to

prevent striking it, and pack with a potato-masher, using the handle; keep adding sand; no need of sifting, when packed hard; use the other end of the masher over the top of the model; fill even full.

18. How should the model be removed from the mould?

Ans. Allowed to drop out, and if it holds, jar against the edge of the moulding box.

19. How should the die be arranged for casting the counter-die?

Ans. Sink it into the sand, nearly to the border-line of the plate, and place a small ring, or a Bailey flask, over it.

20. Is there need of other metals for dies?

Ans. None whatever.

21. How many dies are needed in any case?

Ans. In many cases one only is needed, and when the second is required a second counter die is not necessary.

22. Are these methods new, or have they been long in use?

Ans. They have been in use constantly forty years, and have greatly simplified the fitting of metal plates.

Is it not better to follow methods which produce practical results rather than cling to fine spun theories?

OBTUNDING SENSITIVE DENTINE.*

BY HENRY BARNES, D.D.S., CLEVELAND, OHIO.

THE subject of this paper has been chosen, not because I have any new thing to offer, but that discussion may be provoked, and, if there be any new thing of value, that it may be brought to our knowledge. Who of us has not felt the need of some agent having the power to destroy the sensitiveness of the dental organs during the time in which they are being operated upon?

In the past we have had Von Bonhorsh, Herbst, and a score of others, who have heralded the dental world a sure remedy, only to find us resorting to well-sharpened steel, after they have been tried and found wanting.

We must possess a remedy which will not damage or destroy the tissue upon which we work, possessing at the same time obtunding properties.

* Abstract of a Paper read before the Ohio State Dental Society, Columbus, December, 1892.

A recent paper in *The Dental Cosmos* on "Electricity in Dentistry," is very interesting to read, but beyond the mere statement of the writer that he believes that the time is coming when electricity will be used for obtunding sensitive dentine, there is neither reference to the subject, nor help for our difficulty.

There are those who profess to have overcome the difficulty formerly existing in the use of electricity. I must confess, after repeated conversations with the patients of one of these, that there is not a little truth in their claims, but I ask the question, if this is a fact, why are they hiding so valuable a secret or discovery? Why is it not given to the profession for the benefit of humanity?

Surely, if we call ours a liberal profession, the withholding of such knowledge or skill can call forth only the strongest condemnation. We do not ask that the knowledge be given us gratuitously, but we are willing to pay, and pay well for it. We are not among those who profess the gift doctrine to the world, who, when they invent a labor-saving or pain-destroying machine, patent it, and thus contradict themselves; but, on the contrary, we hold that every man is entitled to the reward which comes from the creation of his own brain.

We think him none the less a benefactor of the race if, having discovered a means or remedy to alleviate pain, he charges a fee for such knowledge, for, gentlemen, it is what we are all doing every day of our lives, viz.: charging for our knowledge.

I said in the opening of this that I had nothing new to advance; but I leave with you my mite, hoping it will receive at your hands a fair trial. Don't expect too much, for absolute success is not claimed.

After the dam is applied I take Dr. Black's 1-2-3 mixture, or oil of cassia, wintergreen, or other essential oils, on a pledget of cotton, placing the cotton in the cavity, and with my chip syringe, having a platinum point, draw the heated air from the lamp, heating the nozzle of the syringe red-hot, blow gently onto the cotton until the oil is driven from it. This is done repeatedly, until the cotton looks as though scorched by fire. Now, removing the cotton from the cavity, we are able to cut out quite a considerable amount without pain to the patient. This is especially true of the leathery white, or light brown, decay found in the teeth of young children.

I find this method is so successful that I employ it in all cases of this character, and seldom fail. It is also a great help in many other cases.

The little instrument made by "Small's Thermal Appliance Co.," of Providence, R. I., which throws a spray of heated alcohol into the cavity, is also a very good way to obtund sensitiveness of dentine, and in my judgment, no office is complete without an instrument of this character.

SURGICAL TREATMENT OF CHRONIC ALVEOLAR ABSCESS.*

BY L. E. CUSTER, B.S., D.D.S., DAYTON, OHIO.

OWING to the breadth of this subject, only the excision of the apex of the root will be here considered.

True alveolar abscess, except in rare instances, is caused by the death of the pulp. Such an abscess becomes chronic from one or both of two conditions: there may be a continual discharge of putrefactive poison from the apical foramen, or the apex and the alveolus along the pus tract may be dead. The apex is not only dead, but is often covered with serumnal calculus, or is partially resolved.

The apex of a root is composed entirely of cementum. The cementum begins at the enamel as the merest coating and increases in thickness as it approaches the end of the root till it meets that from the opposite side, where it forms a cone of considerable thickness. It not only covers the root portion of the dentine, but forms so thick a layer at the end that it is the end itself. Successive transverse sections of the root of a tooth show the first to be entirely cementum. When the dentine is reached it increases very rapidly in proportion, due to the general cone shape of the root, while the cementum decreases in thickness. Although the cementum is so intimately connected with the dentine, it is quite a different structure; it is analogous to bone, both chemically and histologically. Cementum contains about 8 per cent. less lime salts than the dentine. When dead it is rough and porous, and is more likely to be an irritant than a smooth surface of dentine. It invites the deposition of serumnal calculus, and is frequently resorbed in places.

* Abstract of a Paper read before the Ohio Dental Society, December, 1892.

During the development of an alveolar abscess the periodontal membrane sometimes becomes stripped from the end of the root, and if the end remains bathed in pus for any length of time, the membrane fails to reattach and this portion of the root is then dead. Although the first cause of the abscess may now be corrected by disinfecting and filling the pulp-canal, the dead cementum, rough, partially resorbed, and perhaps covered with serumnal calculus, is sufficient cause for a persistent formation of pus, and its excision is then indicated.

The operation is not a new one, by any means. It is quite easily performed on the anterior teeth, but on roots of molars and bicuspids it is somewhat difficult, owing to their flat shape and the difficulty of operating in that part of the mouth. There is less danger associated with this operation than with the extraction of a tooth. Care should be used when operating under the antrum that the floor is not perforated.

The sinus leading from the apex of the root is not always the shortest route, but is often tortuous, and in the majority of cases, opens towards the crown.

It is not absolutely necessary that the apex of the root be exposed, but it is better, if it is possible, to do so. It is seldom that there is any alveolus just over the apex in a chronic abscess, and if the sinus does not open here, an incision may be made through the gum, and this enlarged by tents. Instead of cotton for the purpose, let me suggest the use of the sponge tent used in gynæcology. I tried sea-tangle tent, but only once; it could hardly be removed. The sponge acts beautifully and may be easily removed. A piece cut the size of the opening will expand enough that one insertion is sometimes sufficient.

Free access having been gained, and the point of excision having been determined upon, it has been my practice to drill directly through the middle with a No. 3 spear-pointed drill, then follow with a No. 3 fissure point, pressing it laterally on either side till the end is separated. If you bear a little towards the crown at the same time, the end will be somewhat rounded. By using the spear-drill first, an idea of the root's diameter is obtained, and there will also be no slipping of the fissure drill, as is likely to occur if you commence with instrument on the side of the root.

After the apex has been excised, it is advised to smooth the

edges of the new end with proper points. This is the correct thing to do, and if you are sure you can perform this delicate operation without doing more cutting along the side of the root than on the sharp corner, do so. If you have handled the fissure-drill well the end left by this will be somewhat round and quite smooth, and nature will take care of the sharp edges better than the ripped-up peridental membrane and the roughened cementum which was done in your efforts to smooth the corners.

The end presented after the operation of excision is largely dentine; although this is dead, it has been disinfected, and the pulp-canal filled, and is so dense and smooth as to be a non-irritant, and becomes encysted. The cementum around it is alive and nourished by the peridental membrane, and if there is no dead alveolus the irritation produced by the operation and the freshening of the walls of the old pus tract stimulate healthy repair and the sinus closes with little if any therapeutical assistance.

POST-MORTEM TREATMENT OF THE DENTAL PULP.*

BY OTTO ARNOLD, D.D.S., COLUMBUS, O.

For many years it has been the custom in conservative surgery to remove dead from living tissue, that the latter may not be encumbered by disease at the triumph of the former. This has been for long time the accepted practice, and I know of no evidence at present indicating a revolution in custom.

In conservative dentistry the same law prevails; not because of a desire to imitate, but for the reason that it is known to be philosophical and in accord with natural principles and laws, therefore it is scientific. Speculative phenomena are not truly scientific, unless their cause and effect may be accounted for.

In the generally accepted treatment for the devitalization of a dental pulp, and the subsequent management and preparation of the pulp canal for its permanent filling, it seems to me we have well nigh reached perfection, theoretically at least, and that the principles involved convey comprehensive and philosophical conviction.

To more clearly state my proposition, I will illustrate by a brief analysis. A case presents for your consideration, in which

* Read before the Ohio State Dental Society, December, 1892.

is involved an exposed tooth pulp. For reasons satisfactory to yourself, devitalization of the pulp is agreed upon. Believing in arsenious acid as a devitalizing agent, you proceed to apply it, observing the usual precautions throughout your manipulations, dismissing your patient for two, six, or twenty-four hours, as in your judgment seems best. At the appointed time the cavity is unsealed and results investigated. You discover no sensation in the pulp, and thus far are satisfied; accordingly, as anatomical relations are favorable or not you conclude to extirpate the pulp at once, or defer the operation for a more convenient season. After the pulp has been extirpated you fill the canal with a suitable substance, either at once or later, using your judgment to the best interest for the case in hand.

There is nothing chimerical or speculative about the process from beginning to end. It is the outcome of years of progressive experiment and clinical experience, and is accepted as a rational and conservative method wherever modern dentistry is known. It seems nothing short of assumption for anyone to defend a system that has so thoroughly stood the test of time, and given such beneficent results.

But we are now confronted with a proposition in practice, or a method that is directly opposed to the principles of surgical science, which omits what we believe to be the most essential feature, viz., the removal of the dead pulp. I therefore choose to appear as an adversary of the latter, rather than as a defender of a rational and accepted theory.

Briefly described, the details of the method are as follows: Cobalt, to which has been added eight per cent. of hydrochlorate of cocaine, is applied to the exposed pulp and allowed to remain two or three days, then removed, the cavity cleansed from decay and disinfected. Then the coronal part of the pulp is amputated by a large sharp bur, rapidly revolved in the engine hand-piece. The pulp chamber is then washed out with a one-tenth of one per cent. bichloride solution and dried. Now a loosely rolled cylinder or ball of tin or gold foil is placed into the pulp chamber, directly upon the pulp stump, and with a smooth burnisher revolving in the hand-piece, burnished firmly to place.

This in substance is the method that Dr. Herbst, of Germany, submits to the dental profession for approval and endorsement. How far he may succeed depends in a great measure upon

the susceptibility of individual members of the profession to adopt, without investigation, doctrines that contain irrational features wholly inconsistent with scientific facts. I venture, however, the assertion that conservative dentists of this country at least will be slow to retrace their steps and abandon methods which are definite and positive in results, for this German method, which promises nothing good definitely, but much evil indefinitely. Chemically, arsenic and cobalt are practically alike, with different degrees of potency only; the terms may therefore be used synonymously. The addition to either of cocaine may modify pain, but adds no prophylactic properties whatever. Now, if there were any doubts concerning the destructive action of arsenic upon organized tissue, if it acted merely as an anæsthetic and only temporarily suspended sensibility in the pulp, we might have reason to expect a return of function in the future, in which case there would be only a change in environment, provided that during the period of vital suspension the cavity had been filled. However uncertain we may be as to the manner in which disorganization takes place, we most certainly do know that arsenic kills; and if there is any reorganization it is accomplished only on the other side of Jordan, from whence we have no definite returns.

We also know from abundant evidence, clinically, at least, that a dental pulp subjected to arsenic is not rendered immune against septic and bacterial influences. If arsenic established immunity there would have been no occasion to change the method practiced more than fifty years ago by Dr. Spooner and his confreres, who first employed arsenic for destroying tooth pulps, immediately following the process by filling without removing the pulp, and using indiscriminately all substances by any of the then known methods, and this was before the advent of the dental mallet. But as pericemental disturbances and alveolar abscesses subsequently appeared in most cases so treated, and failure upon failure followed sooner or later, it finally dawned upon these gentlemen that the *post-mortem* disposition of the pulp was an important factor, and proved beyond all doubt, that while in its normal state it existed in perfect contentment; after death it made things very uncomfortable unless appropriate obsequies and a foreign burial place were provided.

I doubt not that in Dr. Spooner's practice many cases thus

treated remained comfortable for a long time, and perhaps others continued so throughout the life of the individual. But extraordinary conditions do not establish rules, but exceptions. We cannot lose sight of the natural agencies inherent in living tissues, and their power of combating and arresting destructive tissue metamorphosis. The processes of encysment and absorption are well known types, often providing the only safeguards against rapid and extensive tissue degeneration. Most of us, perhaps, are familiar with unexplainable conditions at times, but these pulp, you may resort to some of the pepsin preparations, picking the canal full, frequently changing the same, which in time may digest the dead tissue left in the canal; or, as a last resort, leave the canal alone, filling the crown cavity with an easily removable temporary stopping and await developments. When pericemental inflammation or its symptoms appears the canal may be reopened, treated antiseptically, and subsequently closed permanently. Taking it for granted, however, that in the multiple-rooted teeth all canals had been previously filled from which the pulps were removed.

The consideration of treatment for putrescent canals, and the more extensive lesions possible, primarily from pulp decomposition have purposely been avoided. The writer aiming chiefly to point out, with the strongest emphasis at his command, the importance of removing dead tooth pulps.

POEM.

Read by request, by D. R. Jennings, D.D.S., at Ohio State Dental Society, December, 1892.

[REFLECTIONS after hearing Smith, Taft, Wright and others talk on "bugs," at Columbus, O., State Dental Association, in 1891.]

I am somthin' of a vet'ran, jest a turnin' sixty year—

A man that's hale an' hearty an' a stranger tew all fear;

But I heard somthin' here last year that made my old head spin,

An' I'm goin' tew ease my conshuns now if I never speak agin!

I've lived my three-score years of life, an' never till that day

Waz I taken fer a jackass or an ign'rant kind o' jay,

Tew be stuffed with sech durned nonsense 'bout them crawlin' bugs an' worms

That's a killin' human bein's with their "Mikroscopic germs."

They say there's "Mikrobes" all about a lookin' fer their prey—

There's nothin' pure tew eat nor drink an' no safe place tew stay;

There's "Miasy" in the dew-fall, an' "Malary" in the sun—
'Tain't safe tew be out doors at noon, nor when the day is done.

There's "Bactery" in the water an' "Trikeeney" in the meat—
"Ameeby" in the atmosphere, "Calory" in the heat;
There's "Corpussuls" an' "Pigments" in a human bein's blood—
An' every kind o' thing existin' sence the flood.

Terbacker's full o' "Nickerteen," whatever that may be—
An' your mouth'll all git'puckered with the "Tannin'" in the tea;
The butter's "Olymargareen," it never saw a cow—
An' things is gettin' wus an' wus from what they be jest now.

Them'bugs is all about us, jest waitin' fer a chance
Tew navigate our vitals an' tew 'naw us off like plants;
There's men that spends a life-time huntin' worms, jest like a goose—
An' tackin' Latin names to 'em an' lettin' on 'em loose.

Now, I don't believe sech nonsense an' I'm not agoin' tew try—
If things has come tew sech a pass I'm satisfied tew die;
I'll go hang me in the sullar, fer I won't be sech a fool
As to weit until I'm pizened by a "Annymallycool!"

COMPILATIONS.

SOME HINTS ON PRACTICE.

BY W. MITCHELL, D.D.S., LONDON.

IN most cases where a porcelain crown is desirable, a very careful preparation of the root is imperative. This can easily be accomplished by most of the various means at our disposal. I prefer to make the end of the root to which the crown is to be fitted quite concave, then, whether it is an all porcelain crown or one with metal attachment, it leaves the minimum amount of fitting to do, viz: at the circumference of the root. This method of shaping the root is also an advantage in the final stage, permitting as it does the minimum amount of setting material when the greatest perfection of contact with the root is required.

Of all the porcelain crowns I have used, I much prefer the Bonwill, permitting as it does the greatest possible range for restoration of lost tissue, anatomical adaptability, and greatest resistance for masticating purposes. Right here I would strongly impress the necessity of a thorough preparation of the pulp canal, and the discarding of a too prevalent custom of using a

stereotyped form of pin or screw. I have found the necessity of a varied assortment of anchorage pins, screws of different sizes, roughened pins, round, oval and flattened, all of which are to be well adapted to the requirements of the root.

The majority of pins as prepared and sold, are too small, and are usually made of material that does not bear well the exactions imposed upon them.

German silver is the best material of which to make pins or screws for this class of work. The wire may be drawn down to the required sizes, and cut to different threads, not too fine, and somewhat sharp. Two of these pins may frequently be used in the case of bicuspid, being soldered together where the crown is to cover them, making the part in the root to approximate the shape of the tines of a tuning fork; this prevents any possibility of rotation, and almost entirely prevents fracture of the pin where the strain is the greatest.

I find after the pin has been set, and the crown adapted, an expeditious way of setting it is by the use of a combination of quick-setting cement and amalgam, as follows: Having first filled the countersink with amalgam, fill the under side with cement, and press crown firmly to place. This presses out all surplus cement from *beneath* the crown, thereby securing a perfect joint at the cervix, besides saving the time required for cutting out the cement, and refilling with amalgam, which would be necessary were not the amalgam used in conjunction with the cement. The operation is also rendered more cleanly than where the cement is allowed to exude through the crown.

Where a tooth is to be backed and soldered to a pin, after fitting the pin and adapting a platina or fine gold plate to the face of the root, these are to be soldered together in the required position, after which, any final adjustment of the plate to the root may be made.

After the pin and plate are in the correct position the tooth can be fitted, backed, waxed, invested, soldered and finished. This method answers all requirements where single teeth are mounted, affording at once an immunity from pain for the patient, better adaptability of the crown to the root and gum, to say nothing of bleeding, which is almost inseparable from this class of operations, when deep bands are used.

In cases where decay has progressed through the bifurcations

of molar teeth, we sometimes see this ignored, and crowns made to fit over the entire roots, as though no separation had taken place. This leaves the tooth in a very unsanitary condition, and which may eventuate in much trouble, and the collapse of the operation. My course of procedure in such cases is, where the separation of the roots is not *quite* complete, to separate with a fine fissure bur, and crown as individual roots. In the case of lower molars where the roots are perfectly solid, I make what is practically bicuspid crowns, should one root be somewhat loose, but otherwise in a reasonably good condition, solder both crowns together at the grinding surface; this promotes a steadiness which in most cases is all the shaky root requires to restore it to a state of comfort and usefulness. In the case of upper molars: after fitting the bands to the roots, remove in any suitable impression material, pour in sand and plaster, then solder them along their entire length, except where they are to pass beneath the gum, also solder together at the grinding surface; a very strong clean operation is the result. In no case would I consider it good practice where the roots are separated to make one band encompass the detached roots, as it is impossible to secure the requisite amount of steadiness necessary to a successful operation. This, with the natural mobility of the roots, will eventuate in their loss, their destruction being accelerated by the unavoidable accumulation of oral secretions, that are inseparable from this class of operations.

A method of replacing a crown where the pin has been broken off and cannot be removed, is as follows: Grind pin and root off to a common level, with a retaining-point drill. Drill holes to the required depth around and parallel to the pin, connect these with a fine fissure bur, then fit a tube of suitable metal, German silver preferred, and proceed to completion as if the tube was the pin. This very materially simplifies an otherwise difficult operation.

Another method of restoring a porcelain facing, where the pin and backing are intact and cannot be removed, is as follows: Cut two parallel vertical slots in the backing, to allow the pins of the new tooth to slide into, leaving the pins so that they protrude as far through the backing as possible, then fit and burnish to place a piece of thin platina *over* the original backing on the palatal or lingual side. This fitting must be done *very* neatly,

carrying the new backing just under the gum margin. When this is done a drop of wax will fasten the pins to this casing, *remove very carefully*, and when investing, see that the casing is perfectly filled to exclude borax or solder, with which the pins can be nicely flushed, finish in the usual way; a small amount of quick-setting cement is all that is required in the final adjustment. If a shoulder can be left to receive the impact of the antagonizing teeth, so much the better. I have omitted many of the elementary details of these operations as they must be contended with upon their merits as you are all undoubtedly aware.—*Abstract from Dental Review.*

ALL SORTS.

Genese (D.) on an Application for Relief of Pain after Extraction of Teeth, etc.—Take 1 part chloroform, 3 parts tinct. pyrethrum. It is excellent for pain in after extractions, and to give relief to teeth after long operations with gold fillings.—*Items.*

Mitchell (L. J.) on a Reliable Cocaine Solution.—As far as I can see, the best results have been by the combination of hydrochlorate of cocaine—3 parts, and 2 parts hydrate of chloral—a ten per cent. solution for an injection, to which I add about a drop of oil of cinnamon.—*Review.*

Hartmann on Thymol in Acute Pulpitis.—He recommends the application of thymol in substance in acute pulpitis, after thoroughly cleansing the pulp. He says that the pain in the tooth disappears in a few minutes. He prefers thymol to arsenic paste for cauterization of the pulp.—*Monatsschrift für Zahnheilkunde.*

Buisseret (D.) on Hemorrhage after Cocaine in Tonsillotomy and Extraction of Teeth.—Cocaine favors the production of hemorrhage after tonsillotomy and extraction of teeth. The anæmia caused by the anæsthetic is followed by subsequent dilation. Besides the heart, the drug also influences the arterial system and causes vasomotor disturbances.—*Med. Neuigkeiten.*

Barrett (W. C.) on the Use of Coagulating Agents in Root Canals.—As regards the use of coagulating agents in the treatment of root canals, I cannot conceive of any objection to them. If by any it be thought necessary that dentine should be disinfected and made aseptic, this can only be accomplished by agents which have the power of pene-

tration in a marked degree. These are usually coagulants, like chloride of zinc, bichloride of mercury, etc.—*Dental Practitioner*—*Adv.*

Capping for Exposed Pulp.—If a tooth with a deep-seated cavity aches, it is a pretty sure evidence that the pulp is partly exposed, but not that the tooth should be abandoned to the forceps. Place in it a little tannin made into a paste with equal parts of oil of cloves and creosote, and then fill with oxyphosphate. Generally the condition of the pulp will be normal. In a month cut out a small portion of the filling and plate with metal.—*Items.*

Relief for Toothache.—Melt white wax or spermaceti, two parts, and when melted add carbolic acid crystals, two parts. Stir well until dissolved. While still liquid, immerse thin layers of carbolized absorbent cotton wool and allow them to dry. When required for use, a small piece may be snipped off and slightly warmed, when it can be inserted into the hollow tooth, where it will solidify. The ease produced by this simple method is really very great.—*Brief.*

Merriam (H. C.) on Root Canal Material.—I always use iodoform and creosote and push it down with an air pump. I have used it for the last five years; previously I used charcoal, and several times found the tooth became discolored on the margin of the gum. Since using the iodoform and creosote, I have found no discoloration whatever. I make my paste very liquid and blow it down with an air pump as much as possible. I always fill these teeth at the same sitting.—*Review.*

Heitzman (Carl) on Suppuration.—Where there is an abscess there is a loss of tissue. There is nothing dead about it, since the pus-corpuscles creep about the same as amœbæ or colorless blood-corpuscles do. The tissue broken up to pus is not dead; it is merely disintegrated and reduced to its embryonal condition. If any gentleman wants to read my definition of pus-corpuscles, this view ought to be taken, and since Cohnheim's theory has fallen to the ground, you may be satisfied with it.—*Cosmos.*

Miller (W. D.) on the Appearance of Caries in the Teeth of Monkeys.—The same appearances repeat themselves here that have been found in human teeth, both living and dead, in caries of horses' and dogs' teeth, etc. In the deeper parts we find the tubules crowded with bacteria and much distended; nearer the surface the basis-substance is broken down, the tubules melted together, and the whole mass of the tissue in a state of dissolution. In the case before us the destruction has been effected chiefly by micrococci; only at isolated points a few bacilli may be found by careful examination under the microscope.—*Cosmos.*

Richardson on Local Anæsthetics.—He uses a mixture of 100 g. ether and 0.4 g. carbolic acid preferably to ether alone. Its action is more intense and of longer duration. He recommends as a spraying solution: Menthol, 1, chloroform, 10, and ether, 15. Neudorfer employs a solution of 0.59 cocaine hydrochlorate in 50 g. of bitter almond water. The combination of cocaine and eyanogen should be very effective. Steever uses cocaine hydrochlorate, 1; antipyrine, 3; and water, 20.—*Corres. f. Schw. Aerzte and Ph. Central.*

Kirk (E. C.) on Annealing Gold.—Sulphur destroys the cohesiveness of gold and renders it brittle. I think the gold should not come in contact with the flame in annealing it, if the highest degree of cohesiveness is desired. It should be annealed on mica. If you want semi-cohesiveness, you can warm it over an alcohol lamp. I must, therefore, take exception to the advice to use a Bunsen burner for annealing, and for the reasons given, always employ an alcohol flame, which should preferably be burned from an asbestos wick.—*Cosmos.*

Carr (Wm.) on the Use of Artificial Dentures as Intermaxillary Splints.—At the present time, persons with edentulous jaws, even though poor, are rarely without artificial dentures, which may readily be converted into a splint by removing the incisors and canines from the upper denture to afford sufficient space for receiving nourishment; then articulating the upper and lower dentures and firmly uniting them. Such a splint will meet all the requirements of fractures of edentulous jaws, and it may properly be termed an intermaxillary splint.

Crews (J. T.) on Climate and Dentistry.—Climate and location modifies the practice of dentistry to such an extent that I am persuaded to believe that a dental operation performed in one part of the country successfully would be a failure in another section.

The nerve of a tooth is more sensitive to thermal changes, and will not tolerate and live as near a metal filling in a low, malarial country as it will in a higher altitude. I believe it requires more care and skill to treat a dead tooth successfully in a low, damp country than it does in the higher and dryer portions where the blood circulation is vigorous and free from miasmatic poison.—*Sou. D. Jour.*

Mitchell (W.) on the Use of Nitrate of Silver on Diseased Tissues of the Mouth.—I have secured very good results from the use of nitrate of silver crayon upon the hypertrophied gum tissue, when caused by the irritation of salivary secretions. After thoroughly cleansing the teeth, dry the gum margins as thoroughly as possible, then apply the crayon almost to the point of cauterization. I have rarely found the second application necessary. For *cancrem oris* or common canker

sore, touching it with pure nitric acid will prove the best and most effectual remedy. I have never seen a case where one application did not effect a cure.—*Review.*

Goodell (H. W.) on Taking Pains in Making Plates.—We cannot be too careful with our plate work; many a case is ruined in polishing, by overheating and springing. Many times before the plate is removed from the flask it is imperfect, on account of not giving the investment time to thoroughly harden before attempting to pack the case. Then again by filling the flask too full of rubber and attempting to close it.

Plaster should have at least four hours to harden before it is put under screw pressure.—*Items.*

Gabell (D. P.) on Conditions where Gutta-Percha is Contra-Indicated.—Gutta-percha should not be used to line a cavity with when gold is going to be used, as it is impossible to properly condense the gold on it, and pressure on the pulp is very liable to follow. When using it under amalgam, care must be taken not to use too much, or to let the amalgam rest on the gutta-percha, as in either case pressure on the pulp may result, either from the ingress of moisture, or from mastication. Also in teeth where oil of eucalyptus, peppermint or cloves is being used, care must be taken that only a very little remains, or it will dissolve the gutta-percha, and a leak will result; a little of these oils is said to have a beneficial effect.—*Dental Record.*

A New Styptic.—A writer in the *British Medical Journal* wonders that since the discovery of fibrine ferment no one has thought of using it for checking hemorrhage by coagulating the blood in the vessels. He reports a case of hemorrhage from a newly amputated cervix uteri where the bleeding vessels had retracted out of reach of ligature, and the styptic was used with excellent results. The fibrine ferment is prepared by obtaining fibrine in the usual manner by whipping fresh blood, best diluted with three times its volume of water to give a finer fibrine; it is then washed free of corpuscles and extracted for twenty-four hours with five to ten volumes of water. The filtrate from this extract contains the fibrine ferment, and to this one per cent. of chloride of calcium is added with increase of efficacy.

Clapp (D. M.) on a Preparation for the Removal of Green Stain from the Teeth.—Another preparation that I have been in the habit of using in the place of iodine, is a formula composed of tincture of iodine and glycerine, equal parts; to one ounce of this mixture add ten drops of carbolic acid (deliquesced crystals). I don't know that this will act quite as readily on the green stains as the plain tincture of

iodine, but it is much less disagreeable to the patient, and it will act nearly as well. It is also remarkably adapted for congested and inflamed gums, and it is almost a specific for cracked lips. We have a large number of patients coming to us in the winter time with cracked lips, and it is certainly a very painful and disagreeable trouble.—*International Journal*.

Harker (C.) on a Method of Approach to Root Canals of Lower Molar Teeth.—I do not remember ever having heard mentioned the method of approach which I use in distal exposures of lower molars (sometimes I use it in the upper), and would here call attention to it: viz, by cutting away the posterior buccal corner as far as the buccal seam (instead of the usual drilling through the buccal wall), the access of light, the line of vision, directness of approach, and movement of instruments are less obstructed. I think you will also agree with me that in addition to facilitating the whole operation, a tooth so treated is stronger than when prepared and filled in the usual way. I sometimes demonstrate to students this, which I consider the most difficult case, and perform the operation of extirpation, root-filling and contouring of crown with amalgam in forty-five minutes.—*Cosmos*.

Beebe (J. H.) on a Paraffined Cement-Slab.—A piece of American or English tile having its pores filled with melted paraffin makes a very good slab for the mixing of oxyphosphates or other cements. These will not adhere to the paraffined surface as firmly as to a glass or porcelain slab, and after the surface has by use become roughened, it can be made smooth again by re-heating and applying more paraffin.

I know of nothing better for the purpose, unless it be a device suggested by Dr. LeRoy Requa, which consists of a compact pad of writing paper, which from use gradually grows less by the removal of a sheet at a time. Another use can be made of the paraffined tile, which, when wet and dipped quickly in melted wax, will form of it thin and smooth sheets for office and laboratory uses. A smooth slab of plaster of Paris is, however, fully as good, if not better.—*Cosmos*.

Tickner (W. D.) on Short Shut Bites.—I presume other dentists have been troubled, as I have been, in attempting to make a partial denture when the space between molars and bicuspids of one maxillary and the opposing gums of the other is *very narrow*.

If others have been annoyed and perplexed by such cases, let them try the following: Fill one-half of a Weston flask with batter of plaster and whiting. When batter has set to about the consistency of dough press into it artificial teeth as indicated. Remove teeth and fill pits with wax. Connect each pit with main canal by thin narrow line of wax.

Rub the surface dry with whiting, then adjust the other half of flask and fill. When the plaster is hard, separate, remove wax. Melt sufficient of Weston's new metal as will fill the flask, and pour. When cold, remove the cusps and trim, spurring the under side and notching the edges so that the rubber will adhere to them firmly.—*Items*.

Allan (G. S.) on the Use of Bichloride of Mercury for Sterilizing Instruments.—Dentists do not have a chance to use many of the aseptic precautions of surgery; but there is one preparation that they can use a great deal more freely than they do, and that is bichloride of mercury. It is a mistaken idea that bichloride of mercury is going to injure your instruments, or be troublesome in any way. It is a germicide, pure and simple, and not an antiseptic, and one of the most powerful germicides that we have. Used in the proportion of 1 to 1,000, it is invaluable. If you will use, instead of distilled water, rose water, you can dip your instruments into it with impunity. You can pass your mouth-mirror into a Bunsen burner, and then dip it into the solution and wipe it off, and you can keep the mouth and your instruments perfectly clean and in an aseptic condition. Everything we put into the mouth must be kept clean and in an aseptic condition.—*Cosmos*.

Yant (G. A.) on a Method of Setting a Logan Crown on Roots Badly Cupped out and not to be Banded.—When the foramen has been closed, canal cut to proper depth and a trifle larger than post to be used, root is trimmed as desired and canal roughened to hold amalgam. Now take your crown—which should be near the length it will be when finished, post not quite reaching bottom of canal and fitting loosely—wrap around post, entire length, a very thin piece of rolled gold or platinum, put enough cement in upper end of canal to hold covering to post, and press crown to place as nearly in exact position desired as possible; when cement has hardened remove crown and fill around tube with amalgam to fullness required; set the crown now with cement, only enough to fill nicely around post, letting crown rest solidly upon the amalgam, and trim, or after amalgam has hardened grind and trim to shape, fit and set crown. — *West. D. Jour.*

Barrett (W. C.) on Pathology of Alveolar Abscess.—He says we will have to modify our view in regard to the pathology of alveolar abscess. He believes it to be thoroughly demonstrated that the pericementum furnishes all blood supply to the growing tooth. He does not believe anybody ever saw arteries and veins passing through the apical foramen. He believes there is something like Haversian canals that pass through the dentine and the cementum to the pericementum, and that pus will often be found about diseased teeth at the bifurcation of

the roots, and this shows why the treatment through the roots will not succeed. He believes that thorough drying will make a tooth aseptic, but sometimes the point of infection will be found away from the tooth that seems to be the cause of suffering to the patient. In these cases, of course, the treatment must be on the outside, and followed up till the point of infection is discovered and broken up and cleaned out.—*Cosmos*.

Catching (B. H.) on the Effect of Confining Medicaments Over the Pulp.—Where the nerve is not quite exposed, a paper saturated with carbolic acid is sometimes laid over the thin layer of dentine next the pulp, and the tooth immediately filled, but the persistent effect of this medicament sealed over the pulp will be damage incalculable. The result will be just what we want to avoid—the death of the pulp, or a weary struggle for existence.

I do not here refer to pulp-capping, but the effect of confining medicaments over the pulp, hermetically sealed in. We may use other means to disinfect, but we should not swab in carbolic acid. We may use bichloride of mercury, or the essential oils diluted, but they should not be confined in over a nearly-exposed pulp. Medical dentistry is even more empirical than medicine itself. We should not "go it blind."—*Sou. So., Sou. Jour.*

Freeman (R. R.) on Lower Plates.—A plate may be ever so well constructed so far as adaptation and occlusion are concerned, if it does not extend well back and up along the ramus it is liable to wobble in the mouth. It is not always necessary for there to be a well-defined ridge to have a lower plate rest firmly in position. In addition to the plate extending well back, I will give you a little device which was suggested to my mind by Dr. T. E. Busch, of Franklin, Tenn. It is this: After you have waxed up, as you would ordinarily, ready for flasking, extend around the external border a well-defined ridge, say within $\frac{1}{2}$ of an inch of the gum margin; this can the more readily be done by the use of a small piece of wrapping twine which has been saturated in wax. With a slight puff of the blow-pipe flame it will adhere just where you want it, and when reproduced on your plate, will afford a line on which the lip will take hold, and in many cases causes it to adhere with considerable tenacity to the jaw.—*Southern Journal*.

Littig (J. B.) on a Method of Making a Cotton-Brush.—I have a little device which I call the cotton-brush. It is simply made from an ordinary pen-holder and has a wire aluminum screw. I have found it very serviceable in cases where the gums have been very much congested and extremely tender, and in such cases children particularly dislike very much to have their gums brushed with a bristle-brush.

These cotton-brushes, which simply consist of twisting a piece of cotton around the screw, clean the teeth very nicely indeed. Of course, the cotton is thrown away after it is used.

I have used these brushes for about eighteen months, and have found they worked very well. Take a piece of cotton and twist the screw, and it winds it on tight, and gives a simple method of carrying an astringent or anything else you want into the mouth. In every case where I treat pyorrhœa alveolaris, I give the patient one of these, and tell him to dip it in listerine, or whatever else I recommend, and rub the gums well.—*International Jour.*

Mitchell (W.) on Treatment of Fistulous Abscess.—Many of you have no doubt experienced the same difficulty that I have in the treatment of alveolar abscess where there is a sinus, yet the root is impervious to the exit of medicaments. A method I have used for the past year with considerable success is as follows: cleanse the root as thoroughly as possible, and fill as usual. The treatment of the sinus is by the insertion of a gutta-percha point, pink preferred, dipped in oil of eucalyptus, and of sufficient size and length to well distend the opening and reach to the seat of trouble, by leaving the point in situ, I have found a few days would suffice to effect a cure. As granulation proceeds the protruding end may be cut off by the patient, or a shorter one be inserted. This method is certainly more cleanly than where cotton is used, and the ease with which the most tortuous sinus may be followed, will be a surprise to those who have relied upon other methods.—*Review.*

Brown (W. G.) on Pointers in Plate Making.—In taking an impression of a partial lower plate with modelling compound, if, without pressing it up at all, you tell the patient to bite on it and press it home, holding it steady till hard, you will find yourself relieved from standing so long in one position, and the patient will be more comfortable. This is one of the little things that will be found helpful.

Another idea which he has been practicing for fifteen years or more, is that of lining a portion of the surface with soft palate rubber when the tissues are very hard. Pack and close the flask with linen between to make it open easy. Cut the flexible rubber doubled just the size of the air chamber; vulcanize as usual.

In finishing up scrape the lingual surface until you see the color of the flexible rubber, but have enough hard rubber over it to polish and give strength. This will make the plate stay in the mouth in the most difficult cases.

In those extreme cases where the mouth is as flat as your hand, and very hard, the flexible rubber may extend over the entire surface of the

plate, but in all ordinary cases the size of the air chamber is sufficient. It will fill up, of course, in time, but in the meantime the patient has become accustomed to the plate.

This will also be found valuable for lining the entire surface of lower plates. Eventually, as the rubber hardens, it will show cracks, and will not be as durable as an all hard rubber plate.—*Sou. So., Sou. Jour.*

Merriam (H. C.) on Materials for Cleaning Teeth.—There is one thing that should be noticed, and that is the care of children's teeth when they are too small to come to the dentist. The nurse who has the care of the children can take one tooth at a time and attend to it, whereas in our office it would be too much for the little one's patience, and we cannot afford the time. For that purpose the best thing to use is a piece of rattan, cut to a point like a pen. I think the use of rattan for cleansing teeth came from Dr. Williams, and I have now several hundred rods of it in my cellar, that I use for gardening and other purposes. I think it can be had at almost any furniture store.

Another thing that I like to use is elder-piths. They can be bought in bunches, and are as soft as chamois-skin, and little pieces can be used in the final polishing.

Following the pumice, we can use oxide of tin. That was formerly used a great deal, and I always keep some on hand.—*International Jour.*

Mitchell (S.) on Cocaine Antidotes.—He has found that while ammonia, digitalis and brandy will relieve the milder toxic manifestations of cocaine poisoning, they signally fail when these symptoms are superseded by severe precordial pain, weak and rapid pulse, sighing respiration, borborygmus and belching of wind, muscular rigidity, and, later, paralysis of the whole body, except the brain, which is unnaturally active. In such a case he used a large teacupful of clear coffee, and has found it equally efficacious on subsequent occasions. It can be administered cold or hot. He makes no mention of amyl nitrite.

I. Gluck advocates dissolving the cocaine in a three per cent. solution of phenol. This, he claims, prevents the toxic effects of the former drug and renders the solution stable; as is well known, such solutions otherwise lose their anæsthetic effects after twenty-four hours. Phenol, besides, has a certain anæsthetic power of its own, forms a superficial eschar, which prevents absorption of the cocaine, destroys bacteria, fungi, etc., prevents decomposition in the solution, renders it aseptic, and wards off reactive congestion.

Hugenschmidt (A. C.) on Alveolar Abscesses in Living Teeth.—Chronic localized suppuration does not offer very characteristic clinical signs, and to establish our diagnosis we must satisfy ourselves with the

three following facts: First, the presence of a chronic alveolar abscess, or dental fistula, opposite the apex of the root of the suspected tooth; secondly, to a more or less deep discoloration of the crown of the tooth as compared to the neighboring ones; thirdly, the indication given by the patient that the suspected tooth is the seat of an annoyance, of an obscure pain, when the abscess was forming.

When these three signs are present, and the neighboring teeth are not devitalized, one must not hesitate to trephine the suspected tooth, notwithstanding the dentinal sensibility which will be encountered, and surely, if the pulp be carefully removed, the origin of the trouble will be found.

As a conclusion, I think I can state that living teeth in adults, as well as in children, can give rise to an alveolar abscess.—*International Jour.*

Evans (G.) on a Method of Making a Double Cap Crown.—

After adjusting a gold crown on a tooth he removes it and winds around it a piece of paper which he fastens with a clamp or string. Slipping the paper band off, he pours in Mellotte's fusible metal and immerses it in cold water to cool it off, and has a die on which to adjust a telescoping cap. On this he winds No. 30 to 32 pure gold wire, one piece being left higher than the rest, and which he binds over the top of the crown.

He removes this and solders, adjusting it to the crown-like die. Outside of this he solders a narrow strip of No. 32. If there is any fear of the solder getting inside of the telescopic cap, it can be painted with whiting which prevents the solder from flowing where you don't want it. When all is ready, melt a little fusible metal in a cup, and drop the crowned-die into it, and the gold crown will float to the surface. Pick it out, and if a little of the fusible metal still adheres, immerse it in nitric acid, which will remove the last particle. It is then ready to be adjusted to the crown in the mouth. He finds this a clean and most accurate method.—*Sou. Journal.*

Roop (W. H.) on the Oil of Cajeput and Gutta-Percha.—

It frequently happens that there are cavities where the application of the rubber dam is inadmissible, and such cavities cannot be kept dry. By means of a very light film of the oil of cajeput, gutta-percha may be packed into a wet cavity and made to adhere, either for a temporary purpose previous to filling with gold, or for a permanent filling where the material is not subject to the attendance of mastication.

The cavity is prepared, under such circumstances, without wounding the gum, the cavity made as dry as it may be with any absorbent that is used, and a piece of gutta-percha, just sufficient to fill the cavity, is

softened, and before it is introduced it is moistened with a film of the oil of cajeput, using no more on the pellet than what may be transferred to it from what adheres to the cork of the vial. To substantiate this, Dr. Roop, at one of the meetings of the Pennsylvania Association of Dental Surgeons, procured a tumbler of water; he then softened a small pellet of gutta-percha, coated this slightly with a film of the oil of cajeput, and with an ordinary ball burnisher, pressed this against the inside of the tumbler beneath the water. The gutta-percha adhered to the glass with sufficient force to not only hold its place, but to require some force to dislodge it.

Dr. Roop also presented samples of gutta percha which softened readily by the hot water bath, yet attained a sufficient hardness to enable it to be used on the masticating surfaces of the teeth.—T. F. CHUPEIN, *Sou. So. Sou. Journal*.

Talbot (E. S.) on the Education of the Dentist.—To correct irregularities of the teeth we should have a broad knowledge of the human body. It is not sufficient that a dentist understand mechanics and physics; he should have considerable knowledge of high art. In truth, the specialist should be what may be called a scientific man—well read in evolution, anthropology, ethnology, as well as in anatomy of the human face. No dentist ever lived whose intellect was too great or whose education was too extensive for the profession of dentistry. Of course he should understand physiology, pathology, and especially the subject of absorption and deposition of new matter, and the influence that the condition of the patient has upon these two processes, and also the unfavorable results that may arise from too much irritation from moving the teeth too rapidly. He should also have the kind of education that will enable him to observe any derangement of the system that may result from strain,—a result that is especially liable to occur in delicate children at an age when teeth can be moved most easily. Such knowledge will better enable him to discover the cause of the deformity and in many cases aid him in deciding the kind of treatment that will best correct that deformity.—*Cosmos*.

Parramore (T. H.) on the Use of Sterilized Sponge for Pulp-Capping.—For more than six years I have been using sterilized sponge for pulp-capping, with a success far greater than I at first dared hope. The following is my method of operating:

I assume that the cavity is prepared, the dam adjusted, and the point or pulp-exposure clearly defined and visible. First, thoroughly remove all foreign matter from the cavity.

2d. Cleanse perfectly with 1-500 % solution of bichloride of mer-

cury, fingers, dam, cavity, instruments—everything that, directly or remotely, comes in contact with cavity. I use bibulous paper for this purpose.

The following preparation will be found very convenient; it does not deteriorate with age:

R	Acid Hydrochlorici,	-	-	-	-	3 i.
	Hydr. Bichloride,	-	-	-	-	3 i.
	Alcoholic,	-	-	-	-	3 i.

M. Sig: 10 drops to one ounce, 1-500 % solution.

3d. Hold the sponge wrapped in oil silk (never allow it to come in contact with the fingers) in the left hand, and with pliers tear off a piece the required size, place this upon the pulp at the point of exposure. This is, at times, very difficult to accomplish; it is sometimes necessary to dampen the cavity with bichloride solution, which renders it much easier.

4th. Fill with oxy-phosphate in the usual manner, being careful not to dislodge the sponge. The tooth often aches for some time after the operation, but don't disturb it; if the operation has been properly performed the tooth will get easy, and the pulp will not die.—*Sou. Journal.*

Kirk (E. C.) on the Adjustment of Crowns.—The following method for the adjustment of Logan and similar classes of crowns I have found extremely satisfactory in cases where there has been much loss of root-structure through the action of caries in the pulp-canal, resulting in a large, funnel-shaped opening with more or less weakened root-walls:

After preparing the canal by removing the softened structure, filling the apex, and making suitable undercuts or roughnesses within the canal, the latter is filled flush with its orifice with a good grade of copper amalgam softened to a plastic, buttery condition. The apical end of the tooth-crown pin is sharpened to a point or hatchet-edge, as may be most expedient, and placed against the amalgam surface in the root-opening. A suitable point, mounted in the Bonwill mechanical mallet, is held in contact with the root surface of the crown, which is driven to place in close contact with the root by blows rapidly delivered from the mallet. All excess of copper amalgam is by this means driven out between the surfaces of contact of the crown and root in precisely the same manner as occurs in the use of oxyphosphate. The point used in the mallet for driving the crown to its seat is best improvised from a porte polisher armed with a hickory point, the use of which avoids chipping the porcelain. An excess of copper amalgam should be used, in order to fill all interstices. This method, involving the use of copper amalgam, is advocated only in the class of cases described, and possesses

the advantages of giving complete support to the root, great strength of the material employed, and its insolubility. Other amalgams experimented with for this purpose have not been so satisfactory, because of their lack of plasticity and flowing quality which characterizes the copper amalgam when subjected to the rapid, vibratory, percussive force of the mechanical-mallet blow, which for this purpose should be considerably increased in intensity beyond that ordinarily used for filling operations. — *Cosmos*.

Dennis (G. J.) on Making and Using Matrices.—To be properly used, matrices should be made of some tough, flexible and elastic material, and as thin as possible. When placed in position they should conform themselves approximately to the shape of the teeth as they existed originally; they should be capable of being held firmly in position in such a manner that there can be no slipping or moving from the beginning to the end of the operation; they must be springy, and yield slightly to lateral pressure, as the gold or other material is impacted against them. It is self-evident that they should be wide enough to extend beyond the cervical borders, and in most cases should extend beyond the morsal surfaces. The surfaces looking into the cavity should be well polished to act as reflectors, and to give a finished surface to the filling. Polished surfaces also permit ready removal at the close of the operation. If matrices possess these qualities, and are then placed in position without pressure upon the enamel margins, and are held in position tightly enough to prevent slipping, and yet held sufficiently to allow the filling material to be forced slightly between them and the margins of the cavities; if the enamel margins are prepared according to the principles announced by Dr. Black, the matrices will prove invaluable assistants, and he who uses them will find an economy of time, labor and of nervous energy which will certainly be appreciated.

On the other hand, if matrices are made of an inflexible, unyielding metal and unpolished; if they are held tightly in position with their surfaces in close contact with the borders of the cavity; or so loosely that they slip and slide from their original position; if the enamel margins are either extensively beveled, or thin edges of enamel are permitted to remain; if no consideration of tooth form has entered into the shaping of matrices; or if the filling material is not well impacted against the tooth and against the walls of matrices; if the sides of the filling have not been carried up a little higher than the center as the operation has progressed, then failure in the use of matrices will be the inevitable result, and these instruments will be condemned when it has been the operator who has been at fault.

These instruments must be used carefully and skillfully, and each

case must be studied with regard to the conditions present. If this is done, matrices will receive the approval of all dentists, and the results will justify their more extensive application.—*Review.*

How (W. S.) on the Smudging of Gold.—The common method of annealing gold mats, pellets, or cylinders, by holding them over or in the flame of an alcohol lamp or Bunsen gas burner, is a practice which, while ordinarily successful, is liable to occasion defects in the fillings.

The resulting imperfections are not always observable in flush-finished fillings, although some of these subsequently scale at marginal points on their surfaces; but elaborate building or contour work not infrequently meets with most disappointing disaster, due to the smudging of the gold by the incomplete combustion of the flame fuel. Clearly one of the most important preliminaries to a gold operation should be a careful scrutiny of the annealing flame, to be sure that there is not a trace of smoke; that the combustion is perfect. The wick of the alcohol lamp is usually too tight in its tube, and not loose enough in its assemblage of fibers to permit a free flow of the fluid fuel. Of course, the appearance of a single glow-point of a fiber-end of the wick is a certain sign of smoke, and should at once be remedied. When a lower grade than 95 per cent. alcohol is used, the residual fluid after a few hours burning becomes so watery as to lessen combustion, and cause the charring of the wick-end. The sight of a blackened wick-end leaves no doubt as to the probable character of the annealing, and the operative work done by the use of that lamp.

The illuminating gas of diverse cities differ in quality, and even in the same city varies from time to time in its heat- and light-giving properties; therefore the ordinary Bunsen burner is liable to vary in its degree of combustion; but the habit of closely observing the flame and keeping it regulated to the blue point of complete combustion, will tend to the avoidance of the risk of smudging, the main thing being to be sure that the burner is a good one. It is well to keep at hand a piece of white porcelain,—for instance, a small butter-plate,—and by occasionally holding it for a minute or two over the flame, gain an assurance of the entire absence of smoke.

The mica method of annealing is preferable, as avoiding all risk of a smudge.

Harker (Chas.) on the Treatment and Filling of Root Canals.—When the arsenic is removed, the pulp entirely uncovered, and a portion excised, bleeding it freely to prevent pinking of tooth during the waiting time, about three weeks, while nature is deciding how much of the pulp she will give up, I then place in the pulp-chamber a piece of

dry absorbent cotton, carrying as much as it will of iodoform powder, the piece of cotton being large enough to fill the pulp-chamber.

The cavity is then filled with a temporary gutta-percha stopping until the final operation, when I place dam upon the tooth, and extract pulp from root or roots. With No. 7 or 8 uncut Swiss broach having a perfect taper-point, I work a mixture of campho-phenique, iodoform and zinc oxide to apex, following with a tiny fibre of cotton, carried as nearly to the point as the previous mixture will allow without painful pressure.

This procedure insures carrying a bland sterilizing apical stopping entirely to the so-called "apical space"—that is, to the border-line separating devitalized dentine from living cementum and its investing membrane.

Removing with a broach the fibre of cotton, and drying the canal as thoroughly as possible, the remainder of the canal, when of normal calibre and formation, is filled with a gutta-percha cone made to fit the canal, the point of the cone having been moistened with chloroform previous to introduction.

The apical portion in two-rooted bicuspsids, compressed anterior root of lower molars, and other tortuous or constricted canals, may, by using No. 7 slender Swiss broaches, usually be well filled either with the anti-septic material I have indicated or with chloro-gutta-percha.

Except for the removal of adherent and other calcific deposits, I never ream canals more than may be done with ordinary bud-shaped excavating burs; canals which may not be reamed without great danger of going through the side of the root or breaking off the reamer, may be well filled without reaming. Nicely-tempered slender broaches adapt themselves without danger of breaking; reamers do not.—*International Journal*.

Hugenschmidt (A. C.) on the Treatment of Syphilis of the Mouth.—As soon as the lesion has been sufficiently studied and observed, and we are sure that it is a syphilitic sore, we are justified in beginning the treatment, which consists especially in the internal administration of one of the salts of mercury.

Later on, on the decline of the secondary period, when the tertiary symptoms make their appearance, the internal administration of iodide of potassium comes into play, and it is really remarkable with what rapidity some of these gummatous tumors melt away when the potassium salt is given. In rare instances the iodide alone will not act, but in connection with small doses of mercury it is capable of working wonders.

Hence, whenever, after having removed all mechanical irritative points, we find that an ulcerative lesion of the buccal cavity does not

disappear, we must administer from thirty to sixty grains of iodide of potassium in twenty-four hours, and continue its daily use for several weeks. After a week's treatment, sometimes, the whole lesion is changed, indicating its nature.

The mouth must always be kept in as aseptic a condition as possible, by the use of antiseptic mouth-washes, such as thymol, boracic acid, chloral solutions; while the lesions may be touched twice a day with the following preparation:

R — Salol, 4 grammes;

Liquid vaseline, 30 grammes. M.

Sig: For external use.

As to the prophylactic measures to be taken, they are of the greatest importance.

If the father or mother of a family be affected by this disease, he or she must be absolutely forbidden to kiss their children, or to allow any one to use anything that could have come in contact with the infected mouth. All dental instruments having come in contact with syphilitic patients, must be placed in boiling water for at least half an hour before they are again used.

We must also be careful to protect our fingers with a napkin, moistened with a strong bichloride of mercury solution, if we place it so as to guard the mouth against the slipping of an instrument.

Again, after an operation on a syphilitic patient, the hands must be washed for two minutes in a $\frac{1}{1000}$ bichloride solution.—*Cosmos*.

Bödecker (C. F. W.) on the Herbst Method of Treating Pulp.—The methods of practice observed by Dr. Herbst are as follows: If the pulp of a tooth is in such a condition that it becomes necessary to remove it, an application of cobalt to which has been added about eight per cent. of hydrochlorate of cocaine is made to it, and covered with wax or some other temporary filling material. After two or three days the temporary filling is removed, the cavity cleansed from all decay, and rinsed out with water. Then, if practicable, the rubber-dam is adjusted, the cavity thoroughly disinfected, and the coronal portion of the pulp is amputated by means of a large, perfectly clean, sharp, round bur, which is rapidly revolved in the hand-piece of the dental engine. The bur must be nearly as large as the coronal portion of the pulp which is to be amputated. The pulp-chamber is then to be washed out with a solution of corrosive sublimate, of the strength of one-tenth of one per cent., and dried. A cylinder, or a loosely-rolled ball of No. 4 tin foil, as large as the cavity will admit, is now placed in the pulp-chamber, directly over the amputated pulp-stump, and with a revolving, smooth burnisher, which is smaller than the pulp-chamber, the tin is burnished

firmly into it. In burnishing, care should be exercised not to press the tin directly upon the pulp-stump, but the force should be exerted more laterally. It is also necessary that the stumps to be capped in this manner be not irritated with small burs, excavators, or nerve-instruments, as failure has been observed in those cases in which this was done. Dr. Herbst also advises that in case the tooth becomes sensitive to pressure after such an operation, it should be shortened a little, and the filling in the tooth not left high enough to touch the antagonizing tooth. If amalgam is employed, it is advisable to place a small particle of wax upon the tin cap, and distribute it over the surface of the tin by means of the rotating burnisher. If this precaution is neglected, the mercury of the amalgam will combine with the tin, and the efficiency of the cap be destroyed.

The theory entertained by Dr. Herbst in regard to this treatment of pulps is, that by burnishing tin or gold into the pulp-cavity, he creates an absolutely air-tight covering to the root-canal, which is not obtainable with other materials. Dr. Herbst claims that good results cannot be expected by the use of amalgam, cement or gutta-percha, and even tin and gold foils introduced into the pulp-chamber by the mallet system have proved to be failures. In cases of front teeth, he employs gold foil instead of tin,—as he claims, with equally good results.—*Cosmos*.

[Dr. Arnold comments on this method in his article on page 16 this issue of the JOURNAL.—ED.]

Bryan (L. C.) on Surgical Treatment of Irregularities.—Irregularly erupted incisors and cuspids erupting palatally—inside the arch—are the special class to which I refer; but the treatment prescribed for them will apply in modifications to a variety of irregularities.

Inject cocaine, and either partially cut away the thick intervening alveolus with drills and long fissure burs, or, when the alveolus is thin, bodily wedge the outer alveolar wall away with a half-round wedge-shaped chisel, by inserting the point of the instrument between the tooth crown and the bone, and forcing it up along the root until enough space is secured for the tooth to be brought out into place outside the lower tooth. This latter I formerly accomplished by pressing the above wedge-shaped instrument or the inner beak of a suitably-formed forceps up along the palatal surface of the tooth until the crown was forced outward sufficiently to be firmly grasped. It was then brought gradually out into place, and secured with a small plate or ligatures. My present method of operating on these cases is much simplified by forceps and fulcrum. The forcep has lobster claw formed jaws, or more resembles the tapir's jaws, with round, drooping proboscis and the short, receding lower jaw.

This curved, long, round, serrated jaw rests on a fulcrum fitted to the arch of the maxillary to be operated on, and the short beak pushes against the palatal aspect of the tooth to be brought out into line. I consider it absolutely necessary to lift the outer alveolar plate before attempting regulation, on account of the great danger of accident to the pulp if the alveolar margin, including the solid septa between the teeth are not broken up. The outer alveolar plate must be so broken up nearly as far as the apex, that the apex will not be moved in its position, otherwise the nerve will be cut off by any considerable lateral movement of the point of the root.

In moving teeth by traction with ordinary forceps, great care must be exercised, and the forcep beaks must be lined with sheet-lead, that the enamel may not be injured, or the tooth slip. A sheet of strip lead the breadth of the tooth is bent over the crown from one side to the other, and burnished down approximately to the surface. When a tooth crown is sufficiently prominent to take an impression, a model of it can be placed in the beaks of a suitable forceps, leaving space around it, and inverting the points of the forceps, melted lead can be poured around the model of the tooth so as to fill out the jaws of the forceps. The resulting lead capsule, slipped over the tooth in the mouth, can be grasped with perfect security by the forceps, and they cannot slip or injure the tooth, although the tooth crown may be decayed and frail. The strip of sheet lead or tin will generally answer the purpose, and is much simpler.

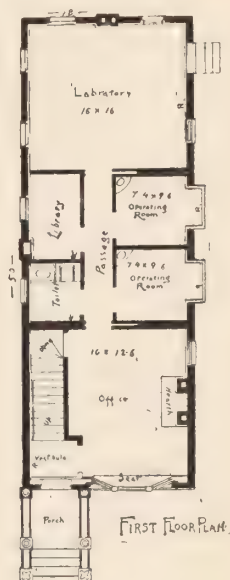
The after-effects are generally very satisfactory, no pain being experienced except soreness, and occasionally some swelling, lasting for some hours. The open socket at the palatal side offers perfect drainage should any inflammation intervene, but patients complain of no inconvenience and are much pleased to get through with it so easily—each one of whom I have inquired have said that they would willingly undertake it again if necessary.—*Dental Review*.

EDITORS' SPECIALS

A MODEL DENTAL OFFICE.

It is with pleasure that we present our readers with a photo-engraving, made at our request, of the new dental office of Professor J. A. Watling, Ypsilanti, Mich. Those of our readers who are acquainted with Dr. Watling, well know that he never

does things by halves, and the completeness of this building certainly shows that characteristic.



The building is on the site of the old office that he has used for the last eighteen years. The new building is two stories high; the second floor rented as a flat, and the whole of the first used as a dental office. The foundation is made of field bowlders of various colors; the side walls of the building are of Toledo pressed brick, and the front of Hocking Valley red sand-stone, with gray sand-stone trimmings, and steps. The windows are of plate-glass. The interior is finished throughout with various kinds of hard wood, including the floors and mantels. The whole building is fitted up with water, gas and electricity, and warmed by a "Capitol Hot Water Heater." The ventilation of the building has been carefully looked after. The operating rooms are supplied with extra large plate-glass windows, facing the north. The laboratory is commodious and well lighted. In fact everything has been arranged with a view to the greatest convenience. A careful study of the ground-floor plan will give our readers a better idea of the arrangement than any description we could make.

L. P. B.

TO OUR READERS.

WE want to thank all of our readers who have bestowed words of praise upon the OHIO JOURNAL, in the past two years, for their kind expressions. The OHIO JOURNAL has completed its twelfth year of publication, and with this issue enters upon a new volume, which we hope to make better in every respect than any of its predecessors. Realizing the value of time to the busy practitioner, it shall be our aim to condense all matters as much as possible and keep out as much superfluous verbiage as we consistently can. We shall use smaller type in the body of the JOURNAL, thus furnishing our readers an increased amount of reading material. For various reasons we have seen fit to change the name to "THE OHIO DENTAL JOURNAL;" use more modern cover paper, new body type, headings, etc.; all of which we hope will meet the approval of our many readers. Read this number through carefully; you cannot afford to skip a line, and let us know how you like the change.

L. P. B.

CORRECTION.

IN the article on "Diseases of the Gums," in December JOURNAL, page 559, line 23, supply the word "hundred" after "twenty-five."

NEW PUBLICATIONS.

METHODS OF FILLING TEETH, by Rodriques Ottolengui, M.D.S., New York City. Published by the S. S. White Co., Philadelphia, 1892.

The author gives a lucid exposition of practical methods which will enable the student and practitioner of dentistry successfully to prepare and fill all cavities in the human teeth. Throughout the work we find 236 illustrations, giving exact representations of all classes of cavities and their management.

In his preface the author says: "I have endeavored to write a work which would be as practical as words could make it. There is not a case described that has not occurred in my

practice. There is not a method advocated that I have not tested. I do not give detailed directions for carrying out methods which I have not attempted. This, of course, makes the book incomplete from that standpoint; but I prefer this to being quoted as authority for that which I have not myself tested, as too many have been already. I do not make any claims for originality in connection with the methods described. If there is any originality at all, it is in the method of teaching rather than in the thing taught."

The book is not intended to be a cyclopedia of operative dentistry, or to contain all the available information in that broad field, but rather to describe, in plain language, practical successful methods of filling teeth under almost any circumstances. And this has been so thoroughly done that there seems to be little lacking. While there are a few statements that exception might be taken to, in the main it is the best book we have to-day on this subject and should be placed in the library of every dental practitioner.

THE RISE, FALL AND REVIVAL OF DENTAL PROSTHESIS. Introductory lecture by C. J. Cigrand, B.S., D.D.S., Professor of Dental Prosthesis in the American College of Dental Surgery, Chicago. Published by request of the class, 1892.

In this treatise of 100 pages, the author has given a history of Egyptian-Hebrew-Chinese-Greek-Roman-Etrurian-European-and American dental art. He has gathered together and presented these facts in such a lucid manner that the book is very interesting throughout. Dr. Cigrand is to be congratulated on the result of his labors and research in compiling this history.

THE MEDICAL AND DENTAL REGISTER-DIRECTORY AND INTELLIGENCER of Pennsylvania, New Jersey and Delaware (1892 Edition). Pp. 424; price, by mail, \$1.25. George Keil, Publisher, 306 Chestnut street, Philadelphia.

This book contains a complete list of the National and State Medical and Dental associations, with their officers and date of meetings, Medical and dental Colleges of the United States, and other very valuable material, Medical and Dental Laws, Hospitals, Homes, etc., etc., also the lists of Medical and Dental practi-

tioners, with their school and year of graduation, and post-office addresses.

The work has been carefully compiled, and bears the impress of being thoroughly reliable in all its departments. It is well printed on good paper, and is nicely bound.

PRELIMINARY ANNOUNCEMENT OF THE PAN-AMERICAN MEDICAL CONGRESS.—We have just received the preliminary announcement of the Pan-American Medical Congress to be held in Washington, D. C., September 5, 6, 7, 8, 1893.

Dr. M. H. Fletcher, Cincinnati, is president of the dental section. It is desirous that as many of the dental profession as possible attend this meeting of the first Pan-American Medical Congress. Coming as it does in September, it will not interfere with the World's Dental Congress at Chicago, August 17th to 25th, or the dental section of the American Medical Association, which meets at Milwaukee, June, 1893.

BOOKS RECEIVED.

Anæsthetics, their Uses and Administrations, by Dudley W. Buxton, M.D., B.S. Philadelphia: P. Blakiston, Son & Co., Publishers. Price, \$1.50.

A Pocket Medical Dictionary, by Geo. W. Gould, A.M., M.D. Philadelphia: P. Blakiston, Son & Co., Publishers. Price, \$1.00.

BRIEFS.

— ANNEAL nerve broaches in a glass tube.—G. P. TERRY.

— To make ozone, use a saturated solution of oxalic acid upon peroxide of manganese.

— A DENTIST should be firm, not rough. Facility in practice is secured by being firm from the beginning.—DR. TREY.

— A DENTIST must be patient himself, even though he may sometimes have impatient patients to try his patience.—A. WETZEL.

— USE a solution of bichloride of mercury and ether for drying out root canals; it is better than alcohol.—L. J. MITCHELL.

— WE hope the time is not far distant when a bacteriological

laboratory will form a feature in every dental school.—*Jour. Brit. Asso.*

— THE man who is best equipped with tools, materials and brains, is the man who will do the best work in the shortest time.
—G. BRUNTON.

— IN extracting teeth which are to be replanted, or implanted the crown should always be protected with sheet lead or sheet tin.—L. C. BRYAN.

— THE powder of "osteo-plastics" by standing, often becomes impaired by absorbing moisture. To remedy this it should be heated over a sand bath in a porcelain dish.

— WHEN a cavity extends under the gums and ligatures have to be pushed up, it can be easily and painlessly done if the gums are first painted with solution of cocaine.—T. FRICK.

— I think that the habit of extracting the first adult molars during the past forty years has done more to cause arrest of development of the alveolar ridge than any other thing.—E. S. TALBOT.

— To moisten corundum wheels, when using in the mouth, twist a piece of wire—either tinned, nickel or aluminum will do, as they are always bright—to the end of which fasten a small bit of sponge.—*Dom. D. Journal.*

— THERE can be no question but that much is lost to the student of to day by exclusion from office training. Many of the little things so essential to correct training are lost sight of in college education.—HENRY BARNES.

— THE soldering of aluminum which has long been a difficult problem, has been recently solved. By sprinkling the surface to be soldered with chloride of silver, and melting down, the soldering is effected simply and satisfactorily.

— IN cases of poisoning by phosphorus, Bokai and Koranyi recommend a 1-5 to 1-3 per cent solution of potassium permanganate. Brought in contact with this, the phosphorus is transformed into harmless orthophosphoric acid.

— PLATES can be lined with black rubber, without its showing through the red, by dissolving black rubber in chloroform, and painting the model two or three good coats. Wait a few minutes before packing other rubber upon the black.—G. A. YANT.

— IN case holes are made in rubber dam by accident, use short cylinders of *cork*—a little larger than the tear in the rubber. A groove is cut round the circumference of the cork, so that the edges of the rubber slip into it and hold in position.—D. V. BEACOCK.

— THE *Therap. Monat.* recommends a solution prepared by dissolving 5 parts of menthol in 8 parts of chloroform as being of singular value in controlling the pain from an exposed nerve. It is applied on cotton inserted into the cavity of the aching tooth in the usual way.

— EUCALYPTOL is an antiseptic proposed by Dr. Schmelz, its composition being: Carbolic acid, 1 part; oil of eucalyptus, 1 part; salicylic acid, 6 parts. It is liquid, has an aromatic odor, dissolves readily in ether, alcohol, alkaline solutions, but in water to a very limited extent.

— EUGENOL.—ACETAMIDE is a new anæsthetic, which will be unique in its class on account of its form of a dry, micro-crystalline powder; it is claimed that the application causes perfect anæsthesia of the mucous membrane of the tongue, and the action is free from irritating by effects.

— I have yet to find the first instance of a previously exposed pulp due to caries having itself after capping wrought out physiologically the theory which the capping process promises, or rather, I should say, the result which the conservative advocate promises for the theory.—C. HARKER.

— To increase the solubility of salicylic acid in water, the addition of one part of acid to one hundred parts of glycerine and one hundred and fifty parts of water gives, it appears, the best results. This mixture is clear and miscible with water without any alteration.

— DR. KIRK has recommended as a neat, tidy and effective means of devitalization, to first make the arsenic into a paste with "Robinson's Remedy" and then to work this into cotton fiber, and to twist this into a loose rope, cutting into small pieces the size of a mustard seed for application into the cavity.

— IN order to lessen the pain from arsenical applications get free exposure of the pulp, and use a mixture of an equal quantity of antipyrin with the arsenic, as the physiological action of the former drug in diminishing blood pressure relieves the congestion.

of the vessels caused by the arsenic, and therefore diminishes pain.—G. O. RICHARDS.

—WE cannot but think that on strictly scientific grounds we are bound to condemn any fixed appliance which does not admit of thorough and efficient cleansing, and to say that where such conditions cannot be obtained, fixed appliances should be avoided, whether they be used for regulating purposes or as artificial substitutes.—*Ed. Jour. Brit. Dent. Asso.*

—DR. MERRIAM says, two years ago he completely cured a case of erosion by the use of a wash. All the front teeth were being rapidly eroded. He recommended the use of alcohol, the instructions were to get a burning in the mouth twice a day, The object of this was to reach the mucous glands that were giving out acid, and to give them a stinging so as to change the character of the fluids.

—WHERE serious results obtain from poisoning the gum with arsenic, the treatment is to dress the part locally with tincture of iron, (*Tinctura Ferri Chloridi*), and to administer internally the hydrated oxide of iron (*Ferri Oxidum Hydratum*), or better still, the same preparation with magnesia (*Ferri Oxidum Hydratum cum Magnesia*).—R. OTTOLENGUI, *Cosmos*.

—EVERY one should understand, says Dr. Benj. Lee, that of all the myriads of bacteria about us in earth and air and water, the great majority are harmless. With very few exceptions, the bacteria which can do us harm are those, and those alone, which come from the bodies of men and animals afflicted with disease. So far as water is concerned—and the same applies to ice—it is only sewage pollution or stagnant filth which we have to fear and shun.

SOCIETIES.

ORDER OF BUSINESS FOR THE WORLD'S COLUMBIAN DENTAL CONGRESS, CHICAGO, AUGUST 17TH TO 25TH, 1893.

AUGUST 17TH—THURSDAY.

10:00 A. M.—Meeting of the General Executive Committee.

11:00 A. M.—Opening of the Congress. Reading of the Resolutions creating the Congress by the Secretary General.

Address of Welcome by John Temple Graves, of Georgia. Responses.

Responses from Foreign Countries.

Address of the President.

Adjournment.

2:30 P. M.—Papers to be read in the Sections.

5:00 P. M.—Adjournment.

AUGUST 18TH—FRIDAY.

9:00 A. M.—Clinics.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—Address before the whole Congress.

1:00 P. M.—Adjournment.

2:30 P. M.—Papers to be read in the Sections.

5:00 P. M.—Adjournment.

8:00 P. M.—Bacteriological Exhibit.

AUGUST 19TH—SATURDAY.

9:00 A. M.—Clinics.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—Adjournment.

2:30 P. M.—Garden Party.

8:00 P. M.—Conversazione.

AUGUST 21ST—MONDAY.

9:00 A. M.—Clinics.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—General Address before the whole Congress.

1:00 P. M.—Adjournment.

2:30 P. M.—Papers before the Sections.

8:00 P. M.—Biology. Lantern Exhibition.

AUGUST 22ND—TUESDAY.

9:00 A. M.—Clinics.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—General Address before the whole Congress.

1:00 P. M.—Adjournment.

2:30 P. M.—Papers before the Sections.

8:00 P. M.—Bacteriological and Biological Exhibit.

8:00 P. M.—Conversazione.

AUGUST 23RD—WEDNESDAY.

9:00 A. M.—Clinics.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—Address before the whole Congress.

1:00 P. M.—Adjournment.

2:30 P. M.—Papers to be read before the Sections.

8:00 P. M.—Public Address under direction of World's Congress Auxiliary.

AUGUST 24TH—THURSDAY.

9:00 A. M.—Clinics at Hospitals. Clinics at the Art Institute.

10:00 A. M.—Meeting of the General Executive Committee.

12:00 M.—General Address before the whole Congress.

2:30 P. M.—Papers to be read in the Sections.

8:00 P. M.—Dinner to the whole Congress. (Subscriptions by members from the United States only.)

AUGUST 25TH—FRIDAY.

10:00 A. M.—Visit in a body to the Medical and Dental Exhibits at the World's Fair Grounds.

12:00 M.—Closing Addresses to the Congress. Luncheon by the members in the Restaurant. (Name to be supplied.)

OHIO STATE DENTAL SOCIETY.

NOTES FROM THE 26TH ANNUAL MEETING.

THERE were ninety-nine members on the roll, of whom forty-six were present, viz., Otto Arnold, P. S. Bollinger, Henry Barnes, J. R. Bell, C. R. Butler, L. P. Bethel, H. Bartleson, L. W. Ballard, J. H. Boger, J. R. Callahan, L. E. Custer, H. R. Clark, C. R. Converse, T. G. Dennis, H. E. Dunn, J. F. Dougherty, A. F. Emminger, M. H. Evans, M. H. Fletcher, W. H. Hague, C. H. Harroun, O. N. Heise, J. O. Hawkins, F. H. Houghton, F. A. Hunter, H. A. Hubbard, D. R. Jennings, J. Jones, F. H. Lyder, Grant Molyneaux, C. D. Miles, C. S. Page, J. R. Price, H. A. Smith, H. T. Smith, W. H. Sillito, C. L. Smith, C. C. Scott, J. Taft, Wm. Taft, W. H. Todd, G. H. Wilson, C. M. Wright, Chas. Welch, Edwin Waddell, J. H. Wible, and in addition the twenty-six members elected at this meeting: W. T. Born, Kenton; Hamlin Barnes, Wellsville; W. F. Binzley, Napoleon; R. A. Barrick, Newark; G. A. Billow, New Carlisle; L. L. Barber, Toledo; H. J. Custer, Johnstown; E. M. Cook, Toledo; W. B. Conner, Akron; S. B. Dewey, Cleveland; E. P. Eddy, Marietta; C. A. Eckert, Columbus; E. R. Hall, Covington; B. W. Jones, Troy; W. I. Jones, Columbus; A. T. Kline, Toledo; Grant Mitchell, Canton; C. F. Oglesbee, Xenia; E. L. Potter, Columbus; J. Holten Robinson, Carey; A. O. Ross, Columbus; C. W. St. Clair, Cumberland; R. B. Stadden, Sabina; E. C. Sloan, Ironton; L. W. Younker, Bowling Green; J. L. Zell, Dayton. Among the visitors were J. G. Templeton and H. W. Arthur, Pittsburgh, Pa.; J. S. Cassidy, Covington, Ky.; J. E. Cravens, Indianapolis, Ind.; C. C. Carroll, Meadville, Pa.; F. S. Stillman, M.D. and E. F. Wilson, A.M., M. D., Columbus, Ohio. We took the names of more than fifty visitors in addition, making a total attendance of 130, and this in a State containing about 1,000 dentists, six dental societies and five dental schools! The whys and wherefores of

this state of affairs we hope to consider editorially in the JOURNAL, later on. Of the twelve members of the Board of Directors all were present, excepting three. Of the nine members of standing committees, five were absent—including one whole committee. The essayists, strange to relate, were ready with their papers, though only a few of the clinics advertised were given, and to a small audience. The clinicians, however, were not to blame.

The next annual meeting will be held in Columbus, the first Tuesday in December, 1893.

The officers elected were: President, G. H. Wilson, Cleveland; 1st Vice-President, Charles Welch, Wilmington; 2nd Vice-President, W. H. Todd, Columbus; Secretary, L. P. Bethel, Kent; Assistant Secretary, Henry Barnes, Cleveland; Treasurer, C. I. Keely, Hamilton.

Board of Directors (three years)—C. R. Butler, Cleveland; A. F. Emminger, Columbus; M. H. Fletcher, Cincinnati; M. H. Evans. Those holding over are (two years)—C. H. Harroun, C. E. Miles, J. A. Lupton, W. H. Hague. (One year)—D. R. Jennings, W. H. Todd, O. N. Heise, C. M. Wright.

The Board of Directors appointed the following standing committees:

On Arrangements—Chairman, C. E. Miles; W. H. Todd, Columbus; L. P. Bethel, Kent; W. H. Whitslar, Cleveland; J. R. Callahan, Cincinnati; L. E. Custer, Dayton.

Publication—Chairman, Henry Barnes, Cleveland; Grant Mitchell, Canton; C. I. Keely, Hamilton.

Membership—Chairman, P. S. Bollinger, Dayton; W. H. Sillito, Xenia; L. L. Barber, Toledo.

In spite of the opposition formerly manifested, the dental depot exhibits increase, and form quite an educational feature of the meetings. Improved appliances and methods are there brought to the notice of many who otherwise would never hear of them.

The members who always agree with everything said, have disappeared or do not tell it in meeting.

The monogram buttons with date, adopted by the Board to serve as a receipt from the Treasurer, and as an evidence of a member's standing, answer the purpose excellently, and we believe will be as widely copied by other societies as was the

idea of a Board of Directors to transact the routine business. When a member rises to speak, if he wears the button, the chairman does not question his right to the floor. The Committee on Membership can see at a glance who are or are not members. On the streets or at the clinics, members know each other by the button, and can approach one another for information without hesitation.

CLEVELAND DENTAL SOCIETY.

At the annual meeting of the above society, Monday evening, December 12, 1892, the following officers were elected for the ensuing year: President, H. F. Harvey; Vice-President, W. H. Whitslar; Secretary, R. A. Dinsmore; Treasurer, E. A. Pease.

OUR AFTERMATH.

SOUTHWESTERN OHIO DENTAL SOCIETY, Camden, May 16, 1893.

NORTHERN OHIO DENTAL SOCIETY meets at Akron, May 9, 1893.

WORLD'S COLUMBIAN DENTAL CONGRESS, Chicago, August 17, 1893.

DRS. ARNOLD AND MILES, of Columbus, have dissolved partnership.

DR. C. W. SIEMANS, the well-known engineer and electrician, died in Berlin December 6, 1892.

STANDING on one's dignity is as uncertain a way to get along in this world as walking on stilts.—*Atchison Globe*.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS—The oldest in the world—meets in Cincinnati, March 8, 1893.

DR. W. W. BURGIN and Miss Dorie Martin of Richmond, Ky., eloped Nov. 28, 1892, to Cincinnati and were married.

MISS LUELLA COOL, of San Francisco is dentist to Stanford University, and gives one day each week to the University work.

DR. L. P. HASKELL, of Chicago, a valued contributor to the OHIO JOURNAL, is pictured as a frontispiece in the *Items of Interest* for November, 1892.

DR. E. M. HIGHT, of Memphis, Tenn., is the new associate editor of the *Southern Dental Journal*, beginning with the number for January, 1893.

AN EXCHANGE says that it has been found that bicyclists who ride to excess are afflicted with catarrhal laryngitis, due to mouth-breathing and the rapidity and pressure with which large quantities of air are forced into the larynx.

GOOD PROOF-READERS are rare; because a good proof-reader must be a man who costs less and knows more than the man whose work he is reading.—*Puck*.

ELECTRICITY IN WAYBACK—"Well, I've heard of red currants, black currants and white currants, but I'll stop chewin' if I ever heerd of *alternating* currents.—*Truth*.

REMEMBER that "whether the accumulations are of mind, purse, or other possessions, man lives as he shares," and help elevate your chosen profession as you have been helped by others who have gone before.

DR. RICHARD T. TAYLOR, of East-Fourth street, Cincinnati, was a passenger on the North-German-Lloyd Steamship Spree, which broke a main-shaft and almost foundered when about 1,000 miles out from Southampton.

CUSTOMER—"Did you get it out?"

Barber—"Hien; how's that?"

Customer—"Oh, pardon me; I thought I was at the dentist's."—*Life*.

PHYSICAL RIGHTEOUSNESS means obedience to the laws of health; means, among other thing, exercise, rest, and the avoidance of overwork. There are many persons who are morally righteous and physically unrighteous.—*Christian Union*.

A SKILLFUL PHYSICIAN.—*Dr. Pulser*—"Yes, sir, I have literally snatched men from the grave!"

Stokes—"Is that so; when?"

Dr. Pulser—"When I was a medical student, sir!"—*Life*.

THE MUCH ABUSED "intelligent compositor" isn't in it with *The Dental Office and Laboratory's* mailing clerk. The November number came to us in numerous packages, one addressed "Ohio State Dental Society, Dr. George Watt, Xenia, Ohio;" and another, "*Pacific Dental Journal*, L. P. Bethel, Xenia, Ohio."

THE BARBEROUS DENTIST.—*Barber* (testing the razor)—"Do I hurt you, sir?"

Baird—"No; not so badly as the last man who had me in his chair."

Barber (highly gratified)—"Who was that?"

Baird—"The dentist."—*Puck*.

THE INCREASE in the number of persons who wear spectacles and eyeglasses, has been very marked within a few years, especially in the schools and professions. Whether due to an increase of defective vision, or to the

greater number of specialists, and a corresponding education of the public in the care of the eyes, we are not prepared to say.

MRS. GEORGIE D. RUNYAN, of Springfield, widow of the late Dr. Runyan, recently received an order for a work to contain 450 pages, dealing with the 400 years of American history, and she completed it within the time stipulated—26 days. It was for R. S. Thompson, of the *New Era*, Springfield, and will contain as a frontispiece, a portrait of Mrs. Runyan.

PROF. LOMBROSO's widely quoted opinion that "in sensibility to pain there is a marked inferiority in women" is so generally misunderstood that it is well to give the Professor's real meaning—that is, that in resistance to pain woman is markedly superior to man, just as the housemaid easily holds a plate so hot that the footman would drop it instantly.

"WHAT is the prime object of our work? Naturally we work for a subsistence, but when a given operation is to be performed, the object that the patient seeks is *result*! We strive for a perfect result of our work, and then the pecuniary reward follows in exchange for the result the patient has procured through our skill and knowledge."—DR. W. H. WHITSLAR.

DIAMOND CUT DIAMOND.—*Dentist* (impatiently)—"Well, if you can't calm yourself, I can't fill your tooth, for I'm just about as nervous as I can be."

Patient—What's the matter?

Dentist—"Why, I've got to have a tooth filled myself, this afternoon."—

—Puck.

THE DENTIST who is worthy the name of professional man, must be able to diagnose disease of any of the tissues of the oral cavity before it is too late for cure. He should recognize inflammation of the osseous structure in advance of necrosis, and be able to use the proper remedies, both local and general, before a resort to surgical means becomes a necessity.—*Ed. Dental Practitioner*.

THE STATE OF WISCONSIN, according to the 8th annual (1892) report of the Board of Examiners, has 435 registered dentists, besides 21 reported out of the State or not in practice, and 24 of whom they have no information. During the year three died; two were fined for violation of the law; nine were licensed on examination, and fifty-three upon proof of diplomas; Money received, \$542.00; paid out, \$540.18.

NOT BRO. BARRETT.—In the last issue of *Printer's Ink* a writer of "bright editorial paragraphs" advertises for work. He adds, "any politics, or no politics." At first thought this seemed to throw light on some of the "journalism" of the day; on second thought, it throws light on the advertiser's lack of employment. A man with no convictions ought to be, and usually is, "out of a job."—*Christian Union*.

"THE DENTIST should know *why*. He should be more than a machine, to do the bidding of the patient. He should be an advisor. He should possess

judgment—and this, not only as to the manner of his operations, but also as to their desirability, and furthermore as to matters, both therapeutic and hygienic, which concern the welfare of the patient, whether such matters attend his operations or lie beyond them.”—Dr. G. S. DEAN, in *Dental Cosmos*.

DON'T ALLOW yourself to be a “Doc.” nor a “tooth carpenter.” Dr. G. S. Dean, of San Francisco, well says in the *Dental Cosmos*:

“It is true that in the eyes of the ignorant public, (or, more properly, the ignorant portion of the public) the dentist is little more than a tooth-filler; just as, in the estimation of this same ignorant public, the physician is only a dose-compounder. But neither general medicine nor dentistry must permit its character to be determined by the ignorant public to which it ministers.”

GOLD, SILVER AND COPPER.—According to the census, there was \$1.58 worth of gold and silver produced in this country last year for every inhabitant. To dig and refine it cost \$20.67 per Troy ounce for gold, and \$1 an ounce for silver. This shows that mining for these precious metals is not a profitable industry on the whole, though individuals make fortunes at it. Since 1880 the United States has become the largest copper-producing country in the world, turning out 226,000,000 pounds yearly, nearly all of it from Montana and Wyoming.

LEARNING DENTISTRY IN JAPAN.—A twelve-year-old Japanese boy sat on the floor in a dentist's office in Japan, having before him a board in which were a number of holes into which pegs had been tightly driven. He was attempting to extract the pegs with his thumb and forefinger. As the strength of this natural pair of forceps develop by practice the pegs are driven in tighter. After a couple of years at peg-pulling, the young dentist graduates, and is able to lift the most refractory molar in the same manner that he lifted wooden pegs.—*St. Louis Globe-Democrat*.

THE CINCINNATI COLLEGE of Medicine and Surgery now occupies a handsome new college building, the former residence of John Kauffman, 605 Vine street, which has been leased for a term of years and remodeled and fitted and furnished with all the conveniences of a first-class modern medical college. There will be three lecture rooms and a large general amphitheatre for operations, demonstrations, etc. The clinics and laboratory will be special features of the work in the new college. The Cincinnati Dental College, of which Dr. G. S. Junkermann is Dean, will be located in the same building.

THE OFFICE.—One cannot be too careful in practice to have one's surgery and waiting-room suitably furnished, the appearance of quietly and harmoniously decorated rooms have a wondrously soothing effect on patients of all temperaments. Neither should the rooms be too luxuriantly furnished, for I have heard patients, when speaking of such houses, say that they knew the fees they pay are in direct ratio to the elegance of the appointments. One should not, however, go too far to the other extreme, and let the rooms become shabby or show an absence of finish.—Dr. GEO. NORTHCROFT in *Dental Record*.

THEY DIDN'T FILL TEETH.—There is a prevalent idea that filled teeth have been found in the mouths of Egyptian mummies. It is true that Herodotus says there were "physicians for the teeth" among the Egyptians of his day, but there is no evidence that they attempted the salvation of teeth by filling. No such instance has ever been presented. Artificial substitutes have been found, which were usually human teeth, held in place by means of gold wires or bands, and extraction and cleaning of the teeth were done; but that plugging as a prophylactic measure was ever a practice, there is no proof to establish.—*Ed. Dental Practitioner.*

A GENTLEMAN.—When you have found a man you have not far to go to find a gentleman. You can not make a gold ring out of brass. You can not change a Cape crystal to a diamond. You can not make a gentleman till you first find a man. To be a gentleman does not depend upon the tailor or the toilet. Blood will degenerate. Good clothes are not good habits. A gentleman is gentle, modest and courteous; he is slow to take offense, as being one who never gives it; he is slow to surmise evil, as being one who never thinks it; he subjects his appetites, refines his tastes, subdues his feelings, controls his speech, and deems everybody better than himself.—*Anonymous.*

WHILE WAITING FOR A PRACTICE.—To a Five Dollar Bill.—William, I have not seen you for a long time. We have not been intimate friends; and yet the fault has not been mine. I have sought you everywhere and other places. I would that I might keep you here in my room. I would that we might be always together. How faithful I would be to you, if you would but be faithful to me. But, alas! It is not to be. Affection such as mine for thee was born but to be blighted. Come, I will introduce you to the landlady; and she in turn will present you at the court of the seller of hams and bacon. How terrible your fate! It is indeed sad that you may not remain in good society.—*Life.*

WELL! WELL! TELL US SOME MORE.—The U. S. law prohibiting the mutilation of our coin has stopped the process dentists had of rolling out five or ten dollar gold pieces in order to make a crown for a tooth. It was a great fraud, anyhow, on the part of some. A certain dentist would show his patient a five or a ten dollar gold-piece, roll it out, and again exhibit it, informing him that it would be used to make the crown. In fact, however, it was sufficient to make half a dozen of them. The patient paid for it, all the same. A company now manufactures crowns and retails them at from \$1.25 to \$3.75 each. They are perfect in workmanship, and crowns on a tooth don't cost \$25, as heretofore.—*Daily paper.*

DR. LEONARD B. MOORE, of Cincinnati, committed suicide in his office on the morning of November 21, 1892. He had taken hypodermic injections of morphine and inhaled chloroform. When found he was past restoration. Ten days before his wife died, and he never recovered from the shock. Dr. Moore was in his twenty-sixth year. They were natives of Batavia, Ohio. The following note addressed to a brother-in-law, was found among the effects of the deceased:

"To H. L. Nichols, Batavia, Ohio: If Dr. H. S. Moore, of Batavia, will pay E. M. Buvinger, my brother-in-law, \$500 cash, he may have office fixtures, good-will, etc. My gun and hunting coat to be given to J. H. McTamany, also of Batavia, O. I want all of the folks to forgive me and not to question my salvation. Tell your father not to think hard of me. Would like you to take an interest in my poor old mother and little Garland. The rest of you will get along nicely. Lay me to the left of my lovely wife, and think of us as living reunited. You have always been kind. L. B. MOORE."

MILLIONS OF FALSE TEETH SOLD.—"We sold one million more false teeth last year than we ever disposed of before in a twelve-month," said the manager of the greatest dental supply establishment in the world to a reporter. "I don't imagine that it was because people are losing their teeth more rapidly now than heretofore, although it is unquestionably the case that the enduring quality of the human chewing apparatus has become progressively less from generation to generation in this country. It is more the fashion now than it has ever been in the past to wear false teeth, partly for the reason that the public has come to realize what excellent substitutes they are for real ones, and partly owing to the fact that toothlessness excites much more disgust than it did in old times, when such an affliction was commonly observed, and was regarded as unavoidable."

"It is very rare to see a person nowadays, whether a man or a woman, visibly disfigured by the absence of teeth. Anybody whose grinders fall out will, in nearly every case, go to a dental surgeon and procure artificial ones. They don't cost much. You can get a complete double set for from \$16 up to \$75. Probably a fashionable dentist will charge you the latter price. His margin of profit is considerable, inasmuch as the teeth themselves cost only from fifteen to eighteen cents apiece."—*Washington, D. C., Star.*

"REGULAR" DOCTORS AND IRREGULAR CURES.—The *Buffalo Commercial* says: "It is a well-known fact that there is no set of men as slow as medical practitioners to accede to suggestions that are not in line with old practice." We believe the *Commercial* is right. At any rate the doctors seem to laymen inordinately skeptical about accepting some things that are matters of common notoriety. Nevertheless it should be said for them that it is a peculiar obligation in their business not to be misled by appearances, and there is probably no class of phenomena as to which appearances are so deceptive as cures. When a physician is called to observe the working of some irregular therapeutic agency, he first denies the illness, then doubts the cure, then its permanency, and finally demonstrates that it was due to something quite different from what the irregular operator has averred. In a great many cases the doctors are right; but if they are not unduly prone to deride what they do not understand, their reputation does them injustice. How ready they are to accept novel theories that come properly accredited was apparent in the enthusiastic welcome given to the Koch consumption cure, and the tolerant reception of the Brown-Sequard elixir. Rum times, these are, and anyone who sets out to be sure that anything isn't so, has got to use discretion in choosing what to be sure of.—*Life.*

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CONTRIBUTIONS.

A SIMPLE AND EFFECTIVE HOLDFAST FOR PORCELAIN INLAYS.

BY D. GENESE, BALTIMORE, MD.

METHODS hitherto adopted for holding porcelain and glass inlays in their place having failed, the following plan was carried out to my satisfaction. But first let me say the etching with hydro-fluoric acid held good, and for a long time, put in irregular inlays and contours, but it was likely to burn off the fine edges or etch the surface where not properly protected by wax, a difficulty not always overcome. I now adopt the following plan: Get my impression of the cavity and edges with number 30 to 60 gold foil, when thoroughly fitted fill with hard wax, heat by spatula, and press to fit tightly. Remove and invest in Teague's compound as lightly as possible. When dry burn out the wax by laying the imprint wax down on a piece of plaster to absorb the wax as melted; this leaves a true mould of the cavity and edges and no force to displace the mould. (No need to have the investment outside the gold overlap). Now take some waste gold foil, roll it up to form a pellet that will lay inside the cavity about one-half depth. Put the porcelain or glass mixture in quite wet and press and dry with bibulous paper, then burn

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it in the usual way each firing until perfectly formed and full enough. It should be a little below absolute fusing point or enough to thoroughly shrink the porcelain without vitrifying it until the last layer. Upon removing the investment and peeling off the gold, the little pellet can be picked out, and a nice depression, with undercut edges, will be formed for the cement to enter and firmly hold the inlay in place.

PRACTICAL POINTS.*

BY HENRY BARNES, D.D.S., CLEVELAND, O.

Our work is of such a character that its success depends largely upon the way in which it is done, and the so-called little points are in reality the fulcrums of our power. I have not deemed it best to describe in detail, but to simply mention the means employed. We are constantly using methods known, it may be only to ourselves and the value of which we do not consider, while if they were known to others they might prove the one thing lacking to success in special cases.

PINK GUTTA-PERCHA is to be found in every well appointed dental office, and is probably used for more purposes than any other one material in our possession. A few are here mentioned: As temporary fillings in cavities already prepared, when want of time or other causes prevents the insertion of a permanent filling; as temporary fillings in large cavities not prepared, to prevent nerve exposure until such time as patient or operator may find time to devote to permanent filling; as a wedge between teeth separated by cotton, rubber or other means to allow inflammation to subside and retain space during the operation of permanent filling; as a wedge between teeth, having large spaces from extraction or otherwise, standing next to the one being filled, to distribute the force of the mallet blow, and thus securing to the patient the greatest possible comfort; as a rest under the arm of the Perry separator to secure the instrument from rocking, slipping, etc.; as a separator and rest for the jaws during operations; as cones to force chloro-percha into every portion of the nerve chamber. It may also be used to make small handles for the broach, thus securing a better hold and more perfect manipulation

* Abstract of a paper read before the Cleveland Dental Society.

of the broach during nerve extraction, especially when the approach is from the distal surface; also wound around the ends of a ribbon saw and making a secure handle for this instrument; also for separating teeth, held on the end of an instrument, and heated to determine the life or death of the dental pulp or nerve.

Used as chloro-percha to fill root canals and making the most perfect filling for this purpose (universally used) which has yet been brought to our notice; to repair the break in the rubber dam; to secure remedies, within cavities, when mixed with cotton. We injure our hand or fingers, and at such times, if we immediately suck the wound and wash with bichloride mercury solution 1-1000, thoroughly dry and smear over with chloropercha, all danger from infection is removed, and the wound will immediately heal. For filling some of the molars when it is impossible to apply the dam, a band of German silver or other metal secured on the inside with chloro-percha and then forced over the tooth will prevent the moisture from interfering with the work; it is also an excellent article to flow over the inside of a cavity when the nerve is nearly exposed and when it is desired to cap with cement.

AMALGAM.—To repair a break in a tooth next a gold filling on the lingual surface, also to repair when decay has attacked the tooth at the cervix beneath the filling. In the first place take a little scrap of amalgam already mixed and which has crystallized, then heat a spatula quite hot and press the amalgam into place, as it immediately becomes hard no danger is feared for immediate dislodgment. This is especially used in those cases when it would loosen the gold filling if much cutting were done. In the second case, after thoroughly preparing the cavity, fill as in ordinary cases, and in many cases decay will be retarded for years. I have seen cases of nine years standing. This is one of the condemned practices of twenty years ago. So our idols are broken.

Fillings at the lingual cervix and in the lingual pit and groove of the lateral incisors: Take a piece of tin or other metal 1-3 inch wide and long enough to surround the tooth to be filled, fasten the end with thread or other means, pass over the tooth, allowing the metal to slide over the cavity between the gum and tooth and with a burnisher crowd down and bend over the edge as much as possible. This will expose the cavity to view

and crowd the gum from the tooth, thus allowing of freedom during the operation and it will also prevent moisture getting into the cavity. A thin coating of chloro-percha applied with a nerve broach will greatly assist in some cases. This method is a useful one in filling cavities on the distal surface of third molars where the gum has grown over the distal ridge.

EXTRACTING NERVES.—It frequently happens that the nerves in the lingual root of superior molars and the distal root of inferior molars are difficult to extract. I have been using two or three broaches in a bunch for such cases with good results. Have we a prescribed procedure for filling nerve canals?

After the arsenious acid paste has been in the tooth for three days, I remove the capping and drill into the pulp chamber, and after removing the pulp and nerves, or so much of them as I can, apply oil of cassia on a pledget of cotton and dismiss my patient for a day, then after dressing with per-oxide-hydrogen, I use oil of cassia and dry out with very hot air and immediately fill. I claim to have good success by this method.

THE USE OF THE SEPARATOR in filling teeth: Perhaps the best of any yet introduced is the Perry. It saves the time of all concerned, and if judiciously used is a boon to our patients. With it, there are few cases which can not be separated enough for immediate filling. After the cavities are filled, a little more space may be gained so that natural contour is preserved and food is not crowded into the V-shaped spaces, to the great inconvenience of the patient, and very likely to re-decay at an early day.

SAND PAPER DISCS, if coated with soap instead of sweet oil or glycerine will not heat the tooth so quickly as when nothing is used, and gives a more polished surface to the filling.

THE APPLICATION OF THE RUBBER DAM.—I have never been able to understand how anything is gained by using small pieces of rubber dam. It should be large enough to well cover the mouth, cheeks and chin, so that it may be held and kept out of the way during operations. Many breaks about the necks of the teeth after the dam has been applied is due to punching the holes too near together; punch them far enough apart so that the rubber will not be stretched in the interdental spaces and be sure to punch enough holes. The ligating is easily done by allowing the thread to extend from tooth to tooth on the lingual side without a single knot. Black carpet thread makes a good ligature and its

color makes it possible to detect any fibers which may have caught or the cervical border of a cavity, especially in deep cavities, splitting the thread and using two strands for teeth closely wedged.

STERILIZATION OF THE HANDS AND INSTRUMENTS OF DENTISTS.*

BY H. A. SMITH, D.D.S., CINCINNATI, OHIO.

IN this paper I shall briefly discuss the methods of sterilizing the hands and instruments of the dentist.

In order to fully appreciate the difficulties and exceeding care required to effect perfect sterilization it may be well to refer to some of the reasons why dentists should practice it. I take it that you believe in a general way in the germ theory of disease. Referring more especially to some of the diseases of the oral and pharyngeal cavities, you admit that in the production of dental caries micro-organisms play an important part, if, indeed, they are not an essential factor, and in the debris found in deep-seated cavities, putrefactive bacteria are always present. That when the pulp-cavity is invaded and the pulp becomes gangrenous, it is a very harbor for infectious germs. That pyorrhœa alveolaris, if not a parasitic disease, is, in the suppurative stage, distinguished by the presence of a large number of pyogenic bacteria. That the disease known as gingivitis is diagnosed by the presence of certain micro-organisms under the free margin of the gums. Admitting the infectious nature of these morbid conditions as well, that infections may arise from the specific germs of syphilis, diphtheria, and other diseases which manifest their presence upon the tissues of the mouth and pharynx, we are somewhat prepared to appreciate the need of careful sterilization of hands and instruments, following our treatment of these and other communicable diseases.

Methods: In the sterilization of dental instruments the methods usually employed are by the agency of chemical solutions and heat, both moist and dry. For our use the ideal antiseptic solution would be one which acts immediately upon the bacteria without in any way injuring the instrument. Quite a number of antiseptics in solution have from time to time been

Abstract of Paper read before the Ohio State Dental Society, December, 1892.

recommended, but none have proved efficient unless the instruments are immersed for from ten to thirty minutes. If these same chemical solutions are heated to near the boiling point they will effect sterilization more rapidly. Dr. Miller, after making quite one thousand tests, concludes, that none of the chemical antiseptics at our disposal meet the requirements of a rapid, convenient and absolutely sure mode of sterilizing dental instruments. In reference to the application of heat, Dr. Miller says: "I have found boiling water to accomplish in two minutes as much as the chemical agents ordinarily used in half an hour." Of the employment of dry heat for our sterilizing purposes, it may be said that it is effective, but not convenient, and besides the temper of the instrument is likely to be taken out if the proper temperature for sterilization is attained. Coming to the consideration of the employment of moist heat, it may be stated that it is ordinarily more effective than dry heat and sterilization is accomplished more quickly. The preferable way is to use moist steam heat generated in some good steam sterilizer.

The methods I have described are the methods usually employed in surgical practice, but for our purpose they require too much time. It should be noted that the dental practitioner is often required to sterilize his instruments several times during his operations on the patient; besides, one patient follows another without delay, and frequently the same instruments are required in the treatment of each case. On the other hand, the operations of the general surgeon are usually more formidable, and preparation of the instruments is anticipated, or at least sufficient time, except in emergency cases, may be had for thorough sterilization.

Realizing the importance of a time-saving method of sterilization to the dentist, I have been led to adopt what may be called sterilization by cremation. It is effected by immersing the infected portion of the instrument in high-proof alcohol, and then igniting the alcohol over a spirit lamp. This may be repeated once or twice without injuring the temper of the instrument. Besides the repetition gives greater assurance that the adhering bacteria have been thoroughly cremated. If the instrument is held in the hand, the precaution should be taken to hold it at such an angle that the flame shall not come in contact with the hand. If thought desirable, sterilization of such instruments as

broaches, scalers, excavators and burs may be done under the observation of the patient, thus giving them the assurance that you are using only clean instruments.

Coming to the consideration of the sterilization of dentist's hands, not much, perhaps, need be said. The essentials are hot water, pure soap, and a good nail-brush. After a thorough cleansing with these, giving especial attention to the nails, the hands should be carefully dried. Then, just before proceeding with the special operation, the ends of the fingers should be immersed for a moment or two in the carbolic acid or bichloride solution. The expert operator manipulates largely with the ends of the fingers. In handling the mouth the finger's ends are brought into contact with diseased tissues, the septic matter in these tissues readily finds its way under the nails; hence the need of special care in cleansing. Some of us, perhaps, can recall instances where negligence in properly sterilizing our fingers has brought about serious trouble, especially in the treatment of root canals. We may sterilize our broach never so carefully, but if we take up cotton with contaminated fingers, and wind it about the broach, and then pass it into a root canal, we have undone all; we have planted septic bacteria either upon the walls of the canal, or have infected the peri-apical tissues. Having found suitable soil the micro-organisms multiply, and in a short while we have the characteristic inflammation present again. These and similar unfortunate results are frequently attributed to other than the real cause; that is, negligence on the part of the dentist to practice surgical cleanliness. On this point Dr. Miller tersely says: "In the simple act of boring into the pulp-chamber we may carry more bacteria into it on our bur than are contained in a whole room full of air. An unclean nerve-broach inserted into the root-canal may introduce a still greater number."

In dealing with this subject it should be borne in mind that there is a wide difference between the ordinary cleanliness of our hands and instruments and what is termed surgical cleanliness. Care in washing with soap and water will accomplish the former. Surgical cleanliness implies that we have to deal with septic or pathogenic bacteria, and that if sterilization is effected it means the destruction of all the forms of microscopic life that may exist upon our hands or instruments. This can only be accomplished by the use of germicides, or by the adoption of germicidal

methods. Both in dentistry and surgery we have a class of practitioners who disparage the value of antiseptic methods. They claim an equal degree of success in their treatment with those who practice the strictest antiseptis. I would not presume to dispute their claims, but I may be permitted the statement, that the surgeon or dentist who has any considerable degree of success in his operations without practicing surgical cleanliness, so called, may at once be classed as an exceedingly clean dentist or surgeon. As a type of this class of surgeons, I may name Lawson Tait, of London, of whom it is said "that in his operations he carefully avoids anything that resembles Listerism." Notwithstanding all this, he is reputed to be the cleanest surgeon in all England. He may use tap water instead of sterilized water, but we may be sure he sees to it that the desired cleanliness is attained. So we have dental practitioners who are successful, and yet they do not believe in the germ theory of disease, neither do they practice technically antiseptic methods. But you may be sure if you study the methods of such men that you will find they are exceedingly cleanly, and perhaps unconsciously they are availing themselves of the very methods which they disclaim. This class of practitioners always seem to be animated by the sentiment, "cleanliness is next to Godliness." A beautiful sentiment, indeed, but better adapted to the time of John Wesley than to our time, when all over the civilized world scientific research is being made to discover methods whereby infectious diseases may be brought under control and, if possible, ultimately stamped out from the face of the earth. Therefore, I would suggest as the more appropriate animating sentiment for our profession, Cleanliness, *plus* sterilization, is next to Godliness.

PRESENT AND FUTURE OF PROSTHETIC DENTISTRY.*

BY G. H. WILSON, D.D.S., CLEVELAND, OHIO.

WE can hardly consider prosthesis of the present without a hasty résumé of the past. I believe every thinking dentist has been impressed, when he has held in his hand a specimen of work made fifty or one hundred years ago, with the wonderful improve-

* Abstract of Paper read before the Ohio State Dental Society, Columbus, Dec. 6-9, 1892.

ment of even the low-priced work of to-day. The specimens we see carved from ivory of the elephant or hippopotamus, are meagre excuses for lost dental organs. The very nature of the material precluded a proper textural appearance, except in rare instances. The method of construction—carving—precluded uniform pressure and absolute contact, the essentials of a suction denture. Our venerable friend, Dr. J. A. Robinson, of Jackson, Mich., quotes Dr. Flagg as saying in 1836: "It was all we could expect if the patient could answer questions in a monosyllable without the plate coming down in the mouth." The same writer tells us that the first artificial teeth he saw were calve's teeth, fastened to a leather base, worn for beauty but not for use, as they were taken out while eating. About 1820 Dr. Plantou brought the first porcelain teeth from France. Though very crude, they were certainly more cleanly and healthful than the carved or calve's teeth. These porcelain teeth were either ligated to natural teeth, doweled to roots or riveted to metal bases. Later, porcelain was improved so that it would successfully withstand the soldering flame. At the time of the introduction of vulcanite, in 1855, great improvements had been made in composition and moulding of porcelain, also in the adapting of and attaching to bases of gold and silver and during the preceding eleven years Dr. John Allen experimented with and partially introduced continuous gum materials. After its introduction everything was supplanted by vulcanite, or "boiled rubber," and we know the woeful wail that has gone up from the good men of the profession over the *vile stuff*, as it is called. But gentlemen, we have been mistaken; it has been one of the greatest blessings (in disguise) that the profession and public has ever known. It has given health and comfort to many, and pleasure and delight to all.

It has been a great blessing to the profession in showing the contrast between the good and indifferent workmen, and brought to the dentist a greater number of patients, affording an opportunity for him to impress upon them the importance of saving the teeth, and the unhealthfulness of diseased tissues and organs. One of the strongest arguments in favor of its usefulness is that, notwithstanding its abuse, it still lives.

Crown and Bridge-Work.—Though scarce a decade since the present form of bridge-work was placed before the profession, it has to-day so firmly established itself that it takes a

courageous man to say, when patients ask for it, that he does not do that kind of work. It is the goal of the average student's ambition. He counts the time lost until he can get at work upon the "one thing in dentistry." It seems to me that no observing man can doubt that bridge-work has sacrificed more good teeth, and worked far more injury to the health of the wearer in the same length of time than vulcanite. Notwithstanding the abuse of both, I believe they have had more to do with the upward progress of dentistry than any other two materials or processes. The public has been educated to desire something better and to pay for more than a \$5 set of teeth. Considering this, there is no longer excuse for a man's confining himself to vulcanite as the only base for artificial work. The effect upon the dentist is even more marked; it has not only taught him manipulation of precious metals, and developed skill never before reached, but, being a new field for exploration, has created thought, and brought to mind more perfect contour, symmetry and harmony, and the effects upon the health of the contiguous tissues. It has been one of the factors in stimulating this mental progress. I believe we are on the threshold of an important era in prosthesis, and that 1900 will see a wonderful development. While this department of our profession has been degraded, etc. What are the factors that are working for this development? I would first mention that there is room for improvement. Another reason is that the profession and public demand something better. Still another, and one that demands attention, is the lengthening of the college courses. Under the old régime of two winters, a cramming process was implied, with insufficient time for manipulation. With half as much more time, greater possibilities are given. Still, there is no time for letting up on the part of either the faculty or student, but time is given for more and a wider range of work. There seems to be a tendency in many of the colleges to devote a portion of the time, the first year at least, to technic work, so that the student, before he goes to work upon the mouth, is thoroughly familiar with the instruments, tools, materials, procedures and processes. Having acquired these beforehand, when he comes to the practical case he is prepared to comprehend the conditions and requirements, and make a study of the principles involved. We observe that there is a disposition to still lengthen the term.

The medical department, University of Michigan, have been agitating a very radical change. They now have a course of four years of nine months each, and talk of extending it to six years of nine months each, and at the same time confer the degrees of B.S. and M.D. There is food for thought, as this growth in our specialty must come by education. There is one factor more I wish to mention—the Columbian Exposition. It is designed that this exhibition shall surpass anything of its kind. It is to be not only an aggregation of the material products of men's minds and hands, but is to be a congress of the men themselves. It is designed that specialists shall be able to come in touch with the mind of the whole world, thereby gaining the spirit of enthusiasm that has animated these noble minds. We are not only to absorb the spirit, but to compare ourselves. What if we are humiliated by the comparison, we who have boasted so much of American dentistry?

COMPILATIONS.

SOME MECHANICAL DEVICES FOR THE RETENTION OF ARTIFICIAL DENTURES.

BY W. STORER BENNETT (LOND.)

MR. BENNETT said that the aim of the experiments which he had been conducting for some time was to produce *hinged* bands, whereby teeth might be clasped around their most constricted portions, unimpeded, nay, even assisted by the overhanging portions of their crowns; and claimed that by his variation from the ordinary construction, more accurately fitting, and in many instances smaller, plates might be used. The bands were of two varieties, the first being self-adjusting, and on the principle of the spring rings frequently attached to watch-chains; the other, a modification of the ordinary brooch joint.

To make the self-adjusting band: (1) Take a piece of thin gold tube about $\frac{3}{4}$ th of an inch in length. (2) Make solid at one end for about $\frac{1}{16}$ th of an inch by soldering into it a piece of gold wire. (3) Tap the opposite extremity with a screw for $\frac{1}{32}$ nd of an inch. (4) Saw a slot through the middle of the solid end of the tube parallel to its long axis, extending as far back as the

hollow part, and rather farther on one side than the other. (5) Fit a small piece of flat gold into the slot to form a tongue or central portion of a hinge, the width of the tube, but projecting slightly beyond its anterior extremity. (6) Drill a hole in the solid portion of the tube and tongue at right angles to the slot. (7) Pass a pin through them, the pin being ultimately riveted or screwed. A band having been accurately fitted to the model, is soldered to the anterior extremity of the tongue, and when this is replaced in the slot and transfixed by the pin the whole forms a hinged band. A piece of extended spiral spring is now thrust into the posterior end of the tube until it comes in contact with the back portion of the tongue, and is then held in position by a small gold plug screwed into the tube behind it.

It will greatly facilitate the accurate cutting of this slot if a small steel tube with a slot in one end be used as a guide, and if a hole be drilled in the template across the slot it ensures the hole in the gold tube being properly placed.

The band so formed may be attached to a gold plate by removing the spring and soldering the tube in the most approved position, the spring being subsequently replaced and retained by the screw plug.

Where vulcanite is to be brought anywhere near the hinge, it is necessary before backing, in order to exclude the rubber, to introduce a little osteo, which may be subsequently dissolved away with hydrochloric acid. The case is then ready for use.

It sometimes happens that it is convenient to have a band which can be opened and left in this position while the plate is being inserted or removed from the mouth; the band then being closed, and remaining firmly fixed until intentionally opened again. In this case the band is soldered to the piece of tube which forms the central portion of a brooch joint, the band being carried sufficiently beyond the tube to press on a small flat spring bent into the shape of a horseshoe magnet. This causes the joint to open or close with a snap, the spring locking the band securely in either position. In order to prevent the ingress of rubber during packing, or of food when in use, the joint and spring are enclosed in a small gold box (measuring only $\frac{3}{16}$ ths of an inch in its largest diameter), which can be soldered to a plate or embedded in vulcanite.

Cases sometimes present themselves in which one or two

teeth have been lost on one side of the mouth only, the resulting space being wedge-shaped, with the base towards the gum, owing to the tilting of the adjoining teeth. Such cases are usually treated, if treated at all, by inserting a plate which covers a large portion of the mouth, in order to insure due steadiness and safety. So large a plate is a source of such inconvenience to the wearer that in many instances its use is abandoned, and the patient is therefore frequently dissuaded from having such a gap filled up at all. It will be admitted that the smaller plates can be made—consistent with their safety, steadiness, and ease of insertion and removal—the better for the patient and the teeth.

By the use of the locking bands referred to, Mr. Bennett claims that the treatment of such cases becomes easy. A plate no larger than the space, but which it accurately fits, has ordinary bands adjusted to the lingual surface of the tooth in front and behind the gap. Two locking bands are then adapted to the labial surfaces of these teeth in such a way that, when open, they are no wider than the width of the gap. Such a plate, when placed in the mouth with the bands open, may be dovetailed into position by pushing it outwards from the lingual towards the buccal surface, and is secured by closing the bands, the overhanging crowns effectually preventing any upward displacement.

Instead of a back tooth, occasionally a front tooth is lost, leaving the same wedge-shaped space with the base towards the gum. In a case of that kind a plate tooth may be attached to a small plate by means of a brooch-joint in such a way that the tooth may be placed in position by turning up the teeth completely out of the way. The plate may then be placed in the wedge-shaped gap, dovetailed into position, and the spring holds it firmly in its place. The method is as follows: A very small plate is used, which accurately fits the gap; a thin flat tooth, having the pins as near to the neck as possible, is backed and fitted in the usual manner so that a small band may be fitted on to the buccal surface of the necks of the adjoining teeth. The small plate has a very small band passing behind the tooth on either side of the lingual surface to prevent the plate being dislocated forward. Next, a piece of 12-karet plate has two parallel lines cut into it, so as to somewhat resemble a comb with three equal teeth. On the outer part of the comb a small piece of tube is soldered. This middle piece of tube is then soldered on

to the backing of the tooth, a pin is run through the hole, forming a common brooch-joint, which allows the tooth to move upwards and downwards on the comb. The back of the comb is now soldered to the plate immediately behind the backing of the tooth. If now a pin is run through all the three pieces of tube, so as to unite the unattached teeth to the plate itself, it gives a tooth working on a hinged joint, which may be turned up entirely while the plate is being dovetailed into position, and may then be closed down. If at the same time a little tongue of gold is soldered to the central tube so as to press on the middle portion of the gum, this being a spring will press upon and retain the artificial teeth either in a horizontal or vertical position. When, as sometimes happens, the buccal bands are too conspicuous, a very small plate is fitted accurately and reduced to the size of the nearest part of the gap. An ordinary tooth is then taken and backed in the ordinary manner; two blades are then fitted, and one of them soldered to the plate. On the back of the backing of the tooth a piece of small gold tube is soldered running transversely across the gap, one end of the gap being closed by the plate and the other end open. A small slot is now cut parallel to the long axis of the tube, a piece of wire is then soldered in such a position as to be able to travel outwards and inwards. Now, if a small piece of open spiral spring is thrust into the tube before putting the wire in its place, the spiral spring will tend to throw the band outwards towards the tooth. The objection might be made to that treatment that the pressure of the spring on the natural teeth would loosen or displace them, but from observation for a considerable time Mr. Bennett did not find it happen in practice, owing to the spring being weak. One case he said had been worn for more than a year, another for eighteen months, and no such unfortunate result had been noticed. Whether ultimately such a result would take place he could not say.

Fifteen-karat gold is used for the spiral springs, and what is known among jewelers as "twelve-karat pale" for the bands.—*Abstract Dental Record.*

ALL SORTS.

Slade (S. C.) on Prevention of Overhanging Edges of Amalgam Filling at Cervical Wall. In all proximate amalgam fillings, when the rubber-dam is not applied, just before filling pack a twist of cotton between the teeth well up out of the way of the cavity, then after filling and trimming, gently withdraw the cotton, and there will be no overhanging edges, or pieces of amalgam to irritate the gum.—*Items*.

Sandrey (E. C.) on the Baume Method of Treating Pulpas immediately after the Use of Arsenic. This consists simply in applying a very small amount of borax in the pulp chamber, covering it with any material, except cement which will not harden in contact with the borax, and then fill as it is desired. I have used this simple method for three years, in over three hundred cases, with only four failures.—*Dental Practitioner*.

Richmond (C. M.) on Spatulas for Mixing Cement.—I found that the acid would at once attack steel, and soon as the nickel was worn off a chemical action would at once take place. I now use copper or nickel for spatulas for all cements. I also use a cube of glass instead of a slab. A three-inch cube can be placed in hot water a moment, and sufficient heat will be absorbed, so that all trouble from thermal changes is at once avoided.—*International*.

Barnes (Henry) on Some Ideas from Practice.—The parallel pliers, now on the market, make excellent saw-holders. Cut your ribbon-saw in two lengthwise, and insert the half to any length desired between the blades and close the pliers. The saw is tightly held, and the plier-handles afford a firm grasp.

Take the celluloid film, used by photographers, wash off the gelatin coating, cut in strips of desired size and use for smoothing off amalgam fillings on proximal surfaces of teeth.

Holmes (A. M.) on the Preparation of Canada Balsam for Cavity Lining.—I have found that when cavities are painted with Canada balsam cut in chloroform it not only serves as a retainer, but the chloroform evaporating, there is left a hard, impervious coating between the filling and the tooth, which effectually closes the mouths of the dentinal tubuli, and forms a non-conductive layer that very materially modifies shocks from thermal changes. In preparing it, evaporate the balsam to the point of dryness, and then dissolve it in enough of chloroform to

reduce it to the proper consistency. Do not allow the Canada balsam solution to coat the cavity quite to the edges of the walls.—*Practitioner*.

Butler (C. S.) on A Method of Anchoring Fillings in Difficult Cavities.—Dr. Butler related a case of a second superior molar which had been filled with gold, the filling extending from the crown to the posterior cervical portion of the tooth. It was found impossible to keep the filling in place. He cut a piece of gold plate to the size and shape of the floor of the cavity, and having soldered two short pins to the plate, it was burnished to fit closely and cemented in position with oxyphosphate, and filled over this in such a way that the gold was held by the pins. There was no further trouble.—*Cosmos*.

Nicholl (R. E.) on Treatment of Pain after Extraction of Teeth. In all cases of pain after extraction, the vacant socket should be sponged out with a loosely-rolled pledget of cotton wool steeped in soda-phenique, or in the following substitute:

Acid Carbol. Glac. $\frac{3}{4}$ i.

Liq. potassæ. $\frac{3}{4}$ i.

Aqua ad $\frac{3}{4}$ viij.

This will usually give great relief, and the wool may be suffered to remain a day or two if the pain tends to return on its removal. Usually one or two applications will dispel the severe pain, so that the wool need not be left in the socket.—*Brit. Journal*.

Bowles (G. C.) on Useful Hints.—I use about one-third emery with my pumice for finishing plates, and finish with half the labor and time, and scour the palatal surface of plate with oil or glycerine to remove the last trace of plaster.

I used to have trouble in holding broken plaster in position, especially partial lowers, long enough to cement together with wax. I now take a roll of wax, applying one end to labial surface of teeth, adjust plate, and secure by pressing wax to plate all around. By this means an accurate adjustment is easily secured.

After cleaning and drying cuspidor, I wipe with an oiled rag, this leaves an oiled surface. Blood and saliva immediately descend, leaving no trace.—*Items*.

Brunton (C.) on Paper Points for Drying Root Canals.—Take Whatman's water color paper of different thicknesses, which is treated with a solution of bichloride of mercury to sterilize it. The paper is cut into strips an inch wide, and after having been boiled in a solution of bichloride of mercury, 1 in 500, for five minutes, it is dried. The paper is simply folded and cut with the scissors, beginning a short distance from the fold, diagonally across to the upper corner, thus making a

wedge-shaped paper point, which has a groove in it, and when it is thrust into a root, instead of driving the matter through the apex it runs into the groove. Besides, the paper being absorbent takes up all moisture. These points can be kept in a box ready for use at a moment's notice.—*Jour. Brit. Dental Asso.*

Coxon (S. A.) on an Apparatus for Prolonging the Anæsthetic Effect of Nitrous Oxide.—The apparatus consists of the ordinary face-piece, and a small curved tube, so as to get it easily to the back of the mouth. Get your patient well under in the ordinary way, and on removing the face-piece detach it and slip the injector on, pass it into the mouth, not just inside, but nearly to the uvula; you will in this way get a very small per centage of atmospheric air. As a rule you can pass the injector behind the mouth prop, and keep it well out of the way of the forceps. You can also use it as a tongue depressor, and often in this way assist the operator. The best position to stand while administering is at the back, or a little to the side of the patient; you are then well out of the way.—*Jour. Brit. Dental Asso.*

Dennis (G. W.) on Malleting Amalgam Fillings.—If you find it necessary to insert a small or medium sized amalgam filling in (for instance) a posterior cavity in a superior cuspid, with the cavity coming through the lingual wall. (Filling in these cavities seem to be more liable to failure than are the average, imperfect packing being the probable cause), just slip a thin, narrow strip of steel between the teeth, wedging it over the cuspid. Cotton touched with sandarac will do for this purpose. Mix the amalgam with as little mercury as possible, press in a chamois skin, and inserting small pieces, one after the other, pack with the mallet until completed, and if you force in a small piece of Watt's crystal gold it will do no harm; then if polished after hardening will be all the better, and keep a better color also.—*Review.*

Faught (L. A.) on the Necessity of Examining the Condition of Patients.—If you would commence in the morning by taking the temperatures of patients as they come in, you would be able to do far more satisfactory work.

To have a temperature just right is essential to the well-being of the patient. If the temperature falls below the normal, his condition is such as to preclude the possibility of doing effective work without danger; if a whole degree below normal, it may prove fatal. If you take a patient with a disturbed condition of the nervous system, who is generally "run down," and subject him to a severe operation, you do it a risk; in fact, it is a wonder that more do not die in the chair. I do not think as many people are injured by the use of nitrous oxide as there are by being oper-

ated upon when in a low state of vitality. If dentists took the precaution to examine the condition of their patients, there would be less stigma thrown on the use of anesthetics.—*International*.

Steele (W. H.) on Articulating Partial Lower Sets to Full Upper Plates. In articulating lower partials to full upper sets, make the upper set first, complete it, fit in the mouth, and for a home patient let them wear the plate till settled to place. Now take the impression for lower partial; make cast and trial plate; try the plate in the mouth and trim to fit. Wax up with spatula and dry heat, building wax on where the teeth are to go for the bite. Put the dry plate in the mouth let the patient close the upper teeth into the wax; now remove all together in this position, and mount in the articulator. Grind and fit on the teeth, try in; you will probably find the articulation all right, but if you notice the slightest displacement in closing the mouth, correct it before you go any farther. I have used this method for twelve years with the best satisfaction to myself and patients.—*Items*.

Simpson (J. F.) on A Quickly-Adjusted Temporary Crown.—Grind broken stump of natural tooth down to near gum border; take an English plate tooth that suits the space, and for a post, a stiff piece of roughened wire flattened at one end. At the flattened end file two small notches in opposite edges, for the pins of the tooth to be bent into to hold the wire firm. This makes the crown, and can be set with gutta-percha or "absorbent cotton" wrapped about the wire and put up the root canal; the swelling of the cotton holds it firm in the root, and can be easily removed and reset each time we have to treat the root. Any of my patients who have had to wear this crown have been well satisfied with it. The first one I used was in the case of a gentleman who had just broken off a dead root central. I set him one, and in thirty minutes he was back at work in his store.—*Dominion Journal*.

When to Fill Root Canals.—The best indication that a tooth-root is in a proper condition to be filled may be found in its dryness. As long as it cannot be made perfectly dry, it is in no state to fill. The rubber dam, of course, should be in position when the time comes. Then thrust a delicate smooth broach as far into the root as possible, and immediately wipe it upon the rubber dam. If there is any moisture it can plainly be seen, and if this cannot be perfectly removed further treatment is demanded, both because the root is not fit to fill, and because it will be impossible to carry any filling material to the end of the canal. When pumping chloro-percha into a canal the distance to which it has penetrated may be told by a look at the broach. If it is clean for any distance from the point, the filling material has not penetrated beyond that place.

The ordinary chip-blower, filled with hot air from above the apex of an alcohol or gas flame, makes the best root or cavity dryer. *Dental Practitioner.*

Case (C. S.) on the Proper Shaping of Plates where there is Muscle Interference.—The very fact that the tissues and the muscles tend to drop towards the maxilla after it has become absorbed and occupy these spaces, makes it oftentimes quite a difficult thing to retain that place for any length of time. I think this is largely due to the fact that dentists do not shape the borders and the buccal and labial surfaces of the artificial dentures properly. We find in almost every instance in which artificial dentures are constructed, instead of taking the natural shape of the original gums, that they take or assume a shape that is entirely unnatural—a bulging out, if you please, of the surface of the plate, both anteriorly or along the border. You take any lower denture and insert it into the mouth, if the muscles have been in the habit of dropping into that surface, instead of hitting the plate, the tendency of the muscles is to drop underneath the plate and lift it up; whereas if it had a depression at that point the muscles would fold in upon it and tend not only by their influence in holding it in position, but would produce an atmospheric force that tends always to hold a plate because the air does not extend beyond.—*Dental Review.*

Beacock (D. V.) on Dental Dots Distilled.—For a canal-dryer, take a piece of copper, trim to size and shape of a good-sized marrow-fat pea, drill a small hole through it, take a piece of piano-wire, a little larger than the hole in the copper, file or grind it down to a nice taper like a heavy broach, drive it through the hole in the copper as far as it will go and set the thick end into a small handle of any kind; you can heat the copper and it will retain the heat and keep the wire hot for a long time. The wire can be made as fine as you wish for entering any canal, by using disks of sand-paper used on a mandrel in the engine; place these discs face to face, and put card-board at the back of each disc to stiffen it.

For lower cases use pieces of block tin. This answers a double purpose, prevents the rubber being porous and answers instead of weighted rubber.

German silver, rolled out thirty-six gauge, for bands, three or four sizes of piano-wire, together with a few pieces of German silver joint wire, such as is used by watch-makers; a little soft solder, some small rubber tubing; almost any ordinary case of irregularity may be undertaken, the material costing only a few cents. No plates or jack-screws are required in many cases.—*Dominion Dental Journal.*

Lane (W. A.) on Death from Alveolar Abscess.—Although fortunately of rare occurrence, it is well to bear in mind the possibility of a fatal issue in cases of alveolar abscess. From time to time instances are recorded where pyemia is caused by the absorption of septic material from the socket, and the treatment adopted by Mr. W. A. Lane, in a case reported in the *Lancet*, is worthy of notice. A child of four years had an abscess, in connection with a second temporary molar which was removed, and the cavity was thoroughly cleaned out under an anæsthetic. The abscess had previously opened into the mouth, but there was much diffused swelling over the left half of the lower jaw. The boy became jaundiced and suffered from recurring rigors for four days. It was then decided to make an attempt to stay the progress of the condition by excising any thrombosed veins and clearing out inflamed tissues. The external jugular vein, which contained purulent material, and the facial vein, with their thrombosed branches, and many inflamed lymphatic glands were removed. The patient was better the next day, but ultimately died, and at the post-mortem examination a number of abscesses were found in the lungs and liver, produced before the operation. —*British Dental Journal*.

Dunn (J. A.) on Separating Teeth.—Separating teeth for filling by "tying the cotton in" has been my practice so many years, that I had come to believe that it was in vogue with most of the dental profession, but frequent demonstrations at society clinics and elsewhere seems to prove the contrary. The idea is simple, but very effective, compared with the common use of cotton alone. It consists in placing waxed floss silk between the teeth before packing the cotton into the cavity, then drawing the two ends together and tying. For the bicusps and molars, a large white cotton string may be used in connection with a long roll of cotton, quite firmly twisted, packing the ends in at each side, which, when tied, will form a cotton circle around the contact points of the two teeth, making it impossible when properly adjusted, for it to move from its position.

Practice and judgment will be necessary in order to gain the best results in all cases. The advantages of the method are: 1. The pressure is positive, moving the teeth in a short time with comparatively little soreness. 2. The danger of the compress slipping from its position and impinging on the gum septum is reduced to a minimum. 3. It causes the least pain and inconvenience to patients.—*Dental Review*.

Brophy (T. W.) on Hypertrophy of the Mucous Membrane caused by Artificial Temporary Dentures.—It is a fact well known to every observing dentist, that artificial temporary dentures that have

been in use for six or eight months are a fruitful source of hypertrophy of the mucous membrane—so much so that in some instances they lead to quite marked extension of growths upon the surfaces of the ridges. It has been my duty during the last few years to remove comparatively large sections of growths of hypertrophies of the gums which have come on slowly from temporary artificial dentures long beyond the time when they should have been replaced by better fitting ones. I say temporary artificial dentures. I think every set of artificial teeth is a temporary affair, no matter what it is made of and no matter how well it may be made. At the end of one or two years—five years at the longest—the natural order is for the alveolar ridges to atrophy as time goes on after the loss of the natural teeth, and atrophy permits the artificial denture to settle down or up, as the case may be, until the borders of the plate impinge upon the mucous surfaces at points where they should not. Often the result is hypertrophy of the mucous membrane, and where this ends nobody can foresee. So frequently does it happen that these irritations lead to abnormal developments of a malignant type, which terminate only in death.—*Dental Review*.

Dennis (G. W.) on Preparing a Short or Badly Decayed Root for a Logan Crown.—If the outer third of the root is carefully cleansed down to the sound substance, or, if a sound root, if it be reamed out, and if, in either case, it is then beveled off to the cementum, and a lining of strong amalgam is inserted, you will get both strength for the root and protection from caries. A band within the root, strengthens as much as a band without.

The alloy must be quick-setting, if the operation is to be finished at one sitting, and the opening for the admission of the post should be but little larger than the post itself, in fact, an opening can be left through the amalgam, and the post gradually forced up to form the channel, then after it is withdrawn and barbed it will fit so closely that but little cement can be used, and another advantage is that the crown being forced up while the amalgam is soft, the amalgam will conform to the shape of the cervical portion of the crown, thus making a very close joint, which will not allow of the disintegration of cement, at any very rapid rate.

Meade (H. B.) on Banding Roots for Crown Work.—Many articles have been written concerning the failures made in banding roots for crown work, and many dentists have abandoned the use of collars or bands entirely, because a few cases have come under their observation in which a band was poorly adjusted, there being a V-shaped space between the band and root, the parts being in a highly inflamed condition. If

bands are to be fitted in this manner, it would be better to discontinue the use of them at once, but with the exercise of intelligent care, no such space is necessary.

To overcome the V-shaped space, and have the parts remain in a healthy condition, the band must not be driven on a root that has had no other preparation than merely the crown excised and ground down to the gum-margin. The remaining portion of the enamel that lies under the free margin of the gum must be removed, care being taken so to shape the root that its sides will be parallel and the band must not extend further than the free margin of the gum. A band adjusted in this manner (using pure gold) will cause no inflammation. The end of the root should be ground concave from labial to palatal surfaces, giving it the same curvature as the gum line. This will make the fitting of the porcelain crown to the band an easy matter.—*Dental Practitioner*.

Dennis (G. W.) on A Convenient Method of Adjusting a Logan Crown with Collar Attachment. Cut the root off squarely a short distance (say $\frac{1}{32}$ of an inch) below the gum line and enlarge the canal to just receive the post, then grind the cervical end of the crown to fit the root and secure alignment.

The crown should be larger at the neck than the end of the root. After grinding properly into place, proceed to level or smooth the sides of the root and make a close-fitting band, adjust the band and slightly oil it, mix oxyphosphate quite thick and place over the cervical end of the crown, and entering the post into the root-canal push the crown up against the band, and withdraw carefully. You will now have an impress of the band in the oxyphosphate and after the cement hardens proceed to grind the crown smoothly down and slightly beveling, all around to the mark in the cement, then try it, and if it needs more grinding it can be done, but it should go to place on first trial usually and make a very close fit, as the gold collar will stretch slightly. Then set with the cement, as it can not escape if mixed thick, and you will have a joint nearly or quite impervious to moisture and a fine support for both crown and root, practically one piece. A very important matter in porcelain crown-setting is to have the channel for the post small enough, so that after *barbing* the post, it will be difficult to remove it, *without* the presence of cement.—*Dental Review*.

Ottofy (Louis) on a Case of Atrophy of the Mucous Membrane and Superior Maxillary Bones.—A lady, about forty years of age, had at various times teeth removed until she had lost all of the lower bicusps and molars, and all of the upper incisors. This was the condition seven years ago. An upper plate having four incisors was

inserted. The lower incisors and cuspids were the only teeth coming in contact with the upper denture; gradually they pressed the plate up, until some absorption had taken place, and at the same time, the lower six anterior teeth acted as a wedge passing between the upper bicuspid and spreading the upper arch. As a natural consequence the plate became loosened, and the teeth were driven up; the lady then made a small roll of muslin which she placed above the artificial incisors, but as the same conditions existed the teeth were forced up still further, thus necessitating the addition of more muslin, until, at the present time, the size of the roll when moist is six-eighths of an inch in length and five-eighths of an inch in diameter. As a remedy lower and upper partial dentures were constructed. To prevent the upper plate from being too heavy, the rubber filling this space was made hollow, by packing the interior with cotton. The absorption of the osseous tissue was so extensive that the entire surface, where the underlying nerve trunk was almost exposed, is exquisitely sensitive. As the lower denture prevents the impingement of the lower anterior teeth on the upper plate, I believe that the process of absorption is arrested.—*Review.*

Gingrich (W. H.) on Appliances for Cases where Bridges are not Indicated and where Plates fail to be Useful.—For instance, in the superior jaw, where the molars have been lost, the two anterior teeth being in a salvable condition. The question at once arises: How can the anterior teeth be preserved and still insure an appliance that will be of service in mastication, and work no injury to the remaining teeth, and conserve general hygienic principles? We know that a partial denture inserted here in the general way will be of little service and probably cause more or less absorption of the alveolar processes of the remaining teeth, and frequently abraiding the necks of the teeth to such an extent that its use will work injury not consummate with the benefits obtained. The extraction of the anterior teeth is frequently advised on account of the various difficulties encountered in these cases, and these difficulties are greatly augmented in the lower jaw: so much so that our specialists in prosthetic dentistry advocate the extraction of the bicuspid to secure more gum bearing surface. What appears to me the best treatment of these cases, better than inserting a partial denture, in the usual way, whether further extraction is resorted to or not, is to crown one or more of the bicuspid, as recommended by Dr. Starr for "Portable" Bridge, engage the outer or cuspid cap to the plate and let it telescope over the abutments prepared.

Frequently in the lower jaw one of the wisdom teeth on one side remains though much broken down, this will in no wise defeat the process, it will answer the purpose for an abutment equally well.

The claims made for this method are that further extraction need not be resorted to. It cannot encroach upon or injure the soft tissues. Absorption of the alveolar ridge caused by pressure, rendering the teeth too short for accurate occlusion is averted. The abrasion of the necks of the remaining natural teeth is reduced to the minimum. Sufficient strength is secured with the least bulk, interfering less with enunciation, and above all when properly articulated serves the purpose of mastication, second only to the natural organs.—*Sou. Dental Journal*.

Kirk (E. C.) on Asbestos Fibre in Root-Canal Treatment.

The use of liquid or semi-fluid substances for root-canal dressings or fillings is rendered extremely difficult in the superior teeth without the assistance of some fibrous material which acts as a carrier or vehicle to overcome the effect of gravitation, and so secure the placing of the dressing fully to the apex. Cotton wool, silk, or lamb's wool, and in fact all of the fibers used in this connection, present the uniform objection of inviting the absorption of secretions through their porosity, and by reason of their organic origin of developing a tendency to putrefactive changes with resulting irritating effects on the pericemental membrane. For the past two years I have used with much satisfaction for the purpose under consideration, a long-fiber Canadian asbestos, which is to be had from the dealers in asbestos materials. It should be obtained in its native condition as rock asbestos, not separated into the fine woolly condition by the mechanical processes used in preparing it for commercial purposes. The best variety occurs in irregular masses, deep emerald green in color, with a fine striated structure in which the fibers are in bundles from one-half to two inches in length. For use in pulp-canals, the fiber is readily obtained from such a mass by holding it in the left hand and rubbing off a sufficient quantity in a fine silky condition by using the ball of the right thumb applied at right angles to the length of the fibrous mass. By holding it in this manner for a short time a flock of extremely fine fiber will be obtained, which can be twisted into a suitable wisp, having great tensile strength and a certain rigidity which enables one to readily carry it, even when moistened with a medicament, to the apex of the canal. The material described has certain marked advantages over any other fibrous material in common use for the purpose, viz, it is inorganic and undecomposable by any of the substances ordinarily used for pulp-canal treatment; it is unaffected by the ferment agents there present; it is by reason of its non-combustible character readily and instantly sterilized by passing it through an alcohol flame and heating it to redness; it makes a suitable and unalterable vehicle for the application of tincture of iodine, potassium permanganate, nitrate of silver, sulfuric acid, or any of the agents which disintegrate cotton or wool fiber, as these are prone to do

when used in concentrated solution. Further, it makes a most excellent vehicle in connection with oxychlorid of zinc, chloro-percha, or paraffin as a permanent and unalterable root-filling material.—*Cosmos*.

Treatment of Pyorrhœa Alveolaris.—For a period of ten months we have been using the following solution in the manner indicated: After the roots have been cleansed of all deposits (when present) the edges of the alveolar processs have been scraped with small spoon excavators, breaking down the necrotic process as far as possible. Following this the pockets have been syringed with H_2O_2 until the debris has been removed.

Now, take twelve minims of oil of cassia and add to sixteen ounces of distilled water. Agitate this from time to time for a few days at a temperature of $70^{\circ} F.$, or upward. Very soon the oil will be dissolved in the water.

To each ounce of the above add five minims of the officinal dilute sulphuric acid. Agitate this until thoroughly dissolved.

This solution is to be injected into the pockets carefully and slowly, having previously dried them as well as possible with paper cones.

The solution is astringent and stimulating, and according to the latest experiments, it is a bactericide of positive value. Should the teeth feel sensitive the mouth may be rinsed with lime water or soda water, or any other alkaline fluid as weak ammonia water or soap water.

We have continued this treatment at intervals of four days for from four to five weeks with most excellent results.

In all cases where the teeth are very loose they must be made firm by wiring with pure gold wire or banding them with narrow gold or platinum bands cemented to the teeth.

When the acidity is too pronounced the treatment is alternated with a 2 per cent. solution of zinc iodide in water. When there is much inflammation in the beginning of the treatment, washing the pockets with boroglycerine water one to ten for four or five days consecutively will be of advantage. When great pain is felt on account of the depth of the pockets, inject one minim of vinum opii into each pocket, when the pain will quickly subside. Holding hot water in the mouth from three to five minutes will also relieve pain.—*Editorial Dental Review*.

Gilmer (T. L.) on Ulitis.—Inflammation of the gums caused while polishing fillings, both by laceration of the tissue and by the leaving of insoluble particles between the teeth and gums is not uncommon. Besides the temporary injury resulting from the use of potishing strips, discs, files, etc., there is often serious permanent injury done by them in the destruction of the gum septum, which may result in depression in the

gum between the teeth, affording opportunity for the lodgment of irritating substances which not only cause gingivitis, but injury to the peridental membrane as well. In order to remove insoluble substances left from polishing fillings, it is desirable to forcibly syringe the parts with warm water.

Gingivitis from badly fitting crowns and from unscientifically constructed bridges is yearly becoming more common. It is the exception rather than the rule to find a perfectly fitted crown. It is really a difficult task to perfectly fit bands to all roots. Had we always typical cases it would be different, but these are not the rule. It is probable that the future will show that this kind of work (imperfect crown and bridge work) will prove a fruitful cause of inflammation, not only of the gums, but of the peridental membrane. Usually in such cases the treatment indicated is the removal of the crown or bridge and the more perfect adaptation of it. Inflammation of the gum on the lingual side of the teeth in the mouths of persons who wear partial artificial dentures may sometimes be accounted for by lateral motion of the plates, the rough edges of the septum of the plates resting between the teeth, and the poor care exercised by the wearer. There is a form of ulitis which is very common and usually results from lack of care and lack of friction. The degree of inflammation varies from that exhibited by a slight reddening of the edges of the free margins of the gums to great venous congestion of the entire gingival border, which bleeds at the merest touch. There may or may not be accumulations of tartar, but always more or less of soft deposits about the necks and between the teeth; sometimes there is a bright line of granulation tissue at the margin of the gums and the breath is offensive. This condition of the gums is treated by thorough cleansing, by scarification of the festoons and by the application of a solution of the chloride of zinc. But in order to secure anything like permanent cure the cooperation of the patient is necessary, as the teeth and gums must be thoroughly brushed at least twice a day. To do this I prescribe listerine and water of each $\frac{3}{4}$ iij and direct the patient to first thoroughly brush with water and then as thoroughly repeat the operation with the wash. By this means I secure a good deal of friction and very thorough cleansing.—*Review.*

Weagant (G. H.) on The Use of Copper Amalgam.—I have noticed that failures are more likely to occur in fillings placed in approximal cavities extending over the grinding surface of molars and bicusps than all others. Large crown and contour fillings in molars come next. These fail from wasting or cupping. Buccal fillings very rarely fail unless they extend to the grinding surface, when "cupping" generally takes place. Small crowns and fissure fillings seldom fail, and approx-

imal fillings, anterior and posterior, which do not reach the grinding surface, are almost invariably successful. The most permanent and successful I find are fillings in those shallow, groove-like cavities on the palato-cervical and linguo-cervical surface of molars and bicuspid, and sometimes of canines and incisors.

In my own practice I have very few failures, and I dare say it is because I use copper amalgam very cautiously. I never employ it where other amalgams would do as well, nor where experience teaches me it is likely to fail. I have never considered it to be a substitute for other materials, but rather a material to use when I knew any thing else would fail.

In mixing copper amalgam or preparing it for the cavity, if it is too soft it will result in disintegration and softening of the filling. Neither must it be used hard and dry. See that it works with a smooth plastic finish under the burnisher. If it is dry and granular under a burnisher, it will result in failure. It is not difficult to determine the proper plasticity to give best results, as when it works smoothest and easiest is when it is right, and when it is properly mixed it certainly is a very pleasant material to work.

Do not insert the copper amalgam after it has begun to set, for your filling will fail. After it has begun to set it should not be reheated until thoroughly hard.

Dr. Ames argues that we heat and triturate it too much. Dr. Barnes and Dr. Osmon contend that we do not heat and grind it enough. It is my opinion we heat it too much and triturate it too little. When I say heat it too much, I do not mean too often, but with too high a temperature. Copper amalgam should be heated slowly over a small flame, care being taken not to raise the temperature too high. If care is taken, it does not matter how often we heat it and allow it to get hard again, the oftener the better; but I think that part of it is the manufacturer's business to attend to.

I would like to say a word or two in reference to mortars, it is important to have a good one. Some of the small porcelain mortars to be found at the depots are worse than useless—smooth inside, with a pestle also smooth and too small to grasp. Some of the larger glass and wedgewood mortars are better, but some of the pestles are too large. The mortar I have found to give the best satisfaction is a ground glass mortar and pestle made by Fletcher of England. — *Dominion Dental Jour.*

Blaisdell (E. C.) on an Effective Method of Shoeing Teeth.

Heretofore we have drilled two or more retaining-points or inserted screws, then build gold up or down to the desired amount. Last January I had the pleasure of seeing Dr. Levi L. Howell, of Riverhead, N. Y.,

give a clinic before the First District Dental Society, and through his kindness will read his method of shoeing :

"1. Drill two retaining holes $\frac{3}{32}$ of an inch in depth, each side of the nerve, with a No. 1 round bur. Be sure that the holes are parallel.

"2. Take a piece of platina or iridium round wire, five inches long, just a trifle smaller gauge than the bur, place it in a jeweler's hand-vise, allowing the wire to protrude three (3) inches; file a sharp point on the wire.

"3. Try the wire in one hole, and see that it goes in and out easily.

"4. Take a piece of pure gold plate, No. 32 gauge; cut a piece a trifle larger than the tooth surface you wish to shoe or cap; anneal this well, place it over the tooth, and with a very sharp pointed instrument feel for and locate the hole you have prepared your wire for; when found, just puncture the gold.

"5. Take your wire and push it to the bottom of the hole; if your wire is of right size, the gold will lock around the wire, and when it is removed the gold plate will come along with it.

"Drop a trifle of Parr's flux around the wire on the surface you are to build up.

"Take as small a piece of eighteen-karat solder as you can cut, and place it alongside of the wire on the plate; hold this over a small alcohol flame, and solder; place it on the tooth and gently burnish the gold to its place. When you cut the first wire to free your plate, be sure and leave it projecting as far as you wish to build up.

"Place the plate on the tooth, and proceed with the second pin the same as the first. If your holes are parallel, the plate will come away attached to the wire. Solder this pin the same as the other.

"Do not cut the wire; place the plate on the tooth, and burnish until it fits perfectly. Add a thin film of gutta-percha on the side of the plate that comes in contact with the tooth; warm slightly; place the plate back, and burnish again. This gives you a perfect impression of the surface you wish to cover. Trim your plate of its overhanging edge by the marking of the gutta-percha; remove the gutta-percha, anneal, and burnish. You can now see that your plate fits every part of tooth surface.

"Drop a morsel of Parr's flux on the surface you wish to build up; place a piece of eighteen-karat solder between the two pins; hold over the lamp till the solder runs; repeat this till you have built your plate up as far as you wish. The solder will always run to the top of the first pin.

"Clean out with muriatic acid; cut your second pin off; dry your tooth, and cement in place; when set, finish with sand-paper disks, stones, files, or whatever method is suggested."

By this plan we save much pain and time, producing a shoe that will stand the wear better than the best of cohesive gold work.—*International Journal*.

Atkinson (C. B.) on the Use of Pyrozone in Dentistry.—The medicinal pyrozone is an aqueous solution containing three per cent. H_2O_2 , which represents fifteen volumes of contained gas.

The range of use for this three per cent. pyrozone is similar to that in which the ordinary peroxide has been employed.

Medicinal pyrozone is a good bleacher, but less penetrating in its effects than the stronger preparations.

The antiseptic pyrozone, containing five per cent. H_2O_2 , or twenty-five volumes in ethereal solution, seems to be more generally serviceable in dentistry. They are inflammable and volatile. The first use made of them by the writer was in the bleaching of teeth. A pledget of cotton soaked with pyrozone five per cent. was placed in a cavity, and the surface of the tooth wiped with the same strength. It produced a very considerable bleaching effect in a pulpless right superior first bicuspid. This five per cent. strength has been used to remove the brown or green stain about the necks of children's teeth, care being exercised that the fluid does not touch the gum.

As a bleacher, pyrozone is (by its makers) advised to be used after applying an alkali.

Its application on soft tissue produces a bleaching effect strongly resembling an eschar. This progresses slowly after application, therefore caution should be exercised to give full time for this characteristic appearance before further application.

Pyrozone in all strengths is a prompt hemostatic, although because of the caustic effect sometimes produced by both the stronger ethereal solutions, the three per cent. will probably best serve this office. Pyrozone acts more promptly on moist surfaces than on such as are dry. In a case of pyorrhea alveolaris, suppurating for eight months previous to presenting for treatment, involving the superior six front teeth from cuspid to cuspid, bicuspid absent, molars *in situ* but unaffected, and the inferior teeth from the right second bicuspid to the left first bicuspid, root of the left inferior second bicuspid *in situ*, crown fractured, the suppuration was controlled after one application of caustic pyrozone (twenty-five per cent.) on all of the teeth except about the transverse processes between the right superior central and lateral, and the left inferior central and lateral. The processes themselves had softened, and will require further time to become restored to health. In this instance the caustic pyrozone caused a surface coagulation under which, or through which rather, the gas seemed to be liberated continuously,

producing a crepitus sensation on passing the finger over the surface. This crepitation gradually subsided, the confined gas seemingly being given off through the external coagulated surface.

The color (white) fades more rapidly from the normal surface than from the abnormal, and as a diagnostic help pyrozone five per cent. seems to have possibilities. Liquid alboline, benzoinol, or other *mineral-oil* product, as vaseline, will be found palliative to the prickling of the caustic.

The continued use of pyrozone has intensified the statements made, and with reference to the five per cent. or antiseptic pyrozone it has been found especially efficient in two somewhat grave cases, one of necrosis where the external plate of the alveolus of the inferior maxilla had been (in extraction) ruthlessly separated from the symphysis to the angle, the teeth of the entire lower denture having been ordered removed by a physician, who had externally poulticed an abscessed right inferior first bicuspid. —*Cosmos*.

White (Gordon) on A Method of Perfectly Adjusting the Logan Crown. —By making a considerable change in the present Logan crown by cutting the porcelain next the pin, so that it has a flat surface, and slants at an angle of about 10° or 12° from horizontal, the greater length being left in front, we have a crown that can be adjusted in a few minutes, and with a degree of perfectness not yet obtainable by any crown on the market.

After preparing the canal for the reception of the "Logan pin," select a tooth in the usual way, having regard to correct length, width, and color, and if care has been exercised to select one as near the right length as possible, it will only be necessary to touch the buccal or labial point of the neck of the crown a few times with the corundum wheel and the proper length or bite will be obtained. Next take a disk, or small piece of thin platinum foil, about No. 50, and push through this the pin of the tooth, carrying the disc up against the porcelain. With a little drop of Parr's fluxed wax dropped in the triangle, as it were, formed by the backing and the pin, the disc is held securely in place, and the platinum is trimmed around with small scissors, that there may not be any overlapping. Now place around the pin on the platinum a ball of Parr's wax, stick the pin through the second disc of the foil, and rub the platinum with a hot instrument, that the wax and disc may be sealed together. Place this in ice-water to harden the wax, so as to resist pressure. It is now ready to insert, and by pressing the tooth up until the labial surface strikes the end of the root, and having the patient close the jaws, the correct bite will be secured with the opposite tooth. It will be found on the removal of the crown, that the platinum next the

root has been perfectly swaged to the root-end. This second disc is now trimmed according to the outlines of the root. When it is so desired, the palatine side of the root having been left a little high, or just above the gum, the platinum can be split with scissors, lapped, and burnished around the exposed side of the root, to form a partial band.

After having dried the wax with bibulous paper, and shaped up the approximal sides, these sides are covered with small, triangular pieces of platinum, by laying the platinum on the wax and rubbing over it a hot burnisher. The crown is now ready to invest, and the investing mixture is poured on a small piece of wire netting, which will prevent its cracking during the soldering operation. The wax having been burned out, this triangular box is filled flush with solder in the usual way and polished. The result is a beautiful and perfect crown, in every respect the most substantial porcelain crown we have.

I frequently make the crown without using the triangular piece of platinum to form the box, relying on the investment to form the sides. This saves a little time; but it frequently happens, unless care has been taken to make the wax flush, that the approximal surfaces are not well rounded, and consequently do not finish well. It is therefore safer to use the triangular pieces of platinum foil to form the sides of the box as described, before filling with solder. This plan is particularly adaptable to those cases of practice which have resulted in a rough root-end, and where it is often next to impossible to get them smooth. Where it is convenient, or if desired, the triangular box can be filled with "body" and baked in a Parker furnace from six to eight minutes. This gives us an all-porcelain crown, which fits perfectly to the end of the root. In this case, the first disc next the porcelain is left off entirely.—*Cosmos*.

A Method of Refining Gold. -In melting scrap gold, fillings, etc., care should be taken to see that it is quite clean, and free from organic matter, etc. It is a good plan to heat the scrap in an iron ladle until all wax, grease, etc., are removed, before placing in the crucible for melting. Always melt old gold by itself, using sal-ammoniac and charcoal in equal quantities as a flux. When the ingot has been cast and cooled, test its malleability by rolling or hammering. If it should split when rolling, it is due to the presence of some foreign metal, such as lead, tin, iron or steel. If the latter, the ingot should be broken up and remelted with two parts of carbonate of potash and one part of nitrate of potash. The flux will combine with the iron or steel, leaving the gold free. Then cast and try the ingot as before. If the impurity be lead or tin, the metal will be very brittle, and when broken the grains will be very close and pale. A very small quantity of lead or tin will render gold too brittle to work. It must then be remelted as before, using as a

flux two parts of charcoal to one of corrosive sublimate, breaking the gold into small fragments, and mixing thoroughly with plenty of flux while melting. In this remelting so often, a serious loss in weight occurs, due to the elimination of the foreign metals; for this reason old gold should be melted and refined separately before using it to make alloys, otherwise the refiner will be seriously out in his calculations, and the resulting alloy will not be of the grade desired.

Filings should be spread on paper or glass, and a strong magnet passed over and among them repeatedly, to take out as much iron and steel as possible, before putting in the crucible. This is a very simple method, and it will often save one or two remeltings, if attended to before commencing operations. Or the filings may be placed in a tall bottle, covered with a solution of sulphuric acid to eight of water, shaken up and allowed to stand for some time. The acid will dissolve out the iron, steel, tin, copper and zinc filings, leaving the noble metals untouched. When all is dissolved throw away the solution and wash the filings several times with pure water. Then dry and heat them as before described. It is best to waste the solutions and wash the filings through filter paper, in order to avoid the loss of very fine particles of gold floating in the liquids.

By thus remelting scrap separately, the refiner can come reasonably near to a homogeneous alloy to start with, and he can then raise or reduce its quality, or color it much more easily or certainly, than if attempting to mix scrap, filings and new gold at one operation.

Plumbago crucibles should be used, as they are far the best for melting metals requiring a high degree of heat, and with care they will stand from twenty to fifty heatings. If using a new crucible, a little powdered charcoal should be put into it along with the metal. This will coat the surface of the plumbago, and prevent the melted metal from sticking to it.

The pouring of the gold into the ingot mould requires some dexterity and practice. It must not be done so slowly as to allow the stream of metal to run down the sides of the crucible; neither should the stream be so small as to chill the metal before entering the mould, or imperfect castings will result, and give trouble in rolling the ingot. On the other hand, the stream should not be allowed to strike with force enough to slop over the mould, making rough and uneven castings. The flux floating on the surface of the metal should be prevented from passing into the mould with the metal by using a thin piece of dry flat wood, held with the left hand at the lip of the crucible while pouring. Poplar is the best, as it burns very slowly. The warming and greasing of the ingot mould should also be attended to carefully. If it is too cold or too hot

the metal will spit and fly about on being turned into it. It should be so hot as just to allow touching with the hand for a second or two. If these details are carefully attended to, smooth, tough and malleable castings are pretty sure to result. — *Dental Practitioner*.

EDITORS' SPECIALS.

CLEANSING OF THE HANDS.

For some time it has been a mooted question whether absolute sterility of the hands of dentists is necessary before waiting upon a patient. That is, in the general run of practice. It has been maintained by some that a good scrubbing with plenty of soap and water is sufficient; that this will wash away all micro-organisms that find lodgment on the hands from the oral fluids of a previous patient, so that there is little liability of infecting the patient following. Others say disinfectants or germicides should be used in connection with soap and water. Dr. W. D. Miller, in the last issue of *The Cosmos*, in his article on "Asepsis and Antisepsis in Practice," says:

"It is reasoned that inasmuch as the human mouth, even when well cared for, contains enormous numbers of micro-organisms, the introduction of a comparatively insignificant number on the fingers would probably result in no difference whatever in the general condition of the mouth. Furthermore, the fingers of a dentist do not come into contact with tissues which are very susceptible to infectious agents; consequently, hands that would be fatal to the success of a surgical operation may be introduced into the mouth without any ill results whatever." And he further adds: "These conclusions should be accepted only with considerable restrictions, and only with the understanding that the hands do not carry any specific germs, and do not introduce into the mouth any pathogenic micro-organisms not already there."

Where there is the least suspicion of specific or pathogenic micro-organisms, it is a duty a dentist owes himself, as well as his patients to as thoroughly sterilize his hands as possible after dismissing such a subject.

As a cleanser Dr. Miller has adopted the use of lysol in a one to four per cent. solution, stating that the odor left on the

hands is not disagreeable to patients, etc. We made use of this antiseptic, more or less, for nearly a year, but found the odor remaining on the hands very disagreeable to, at least, our own sense of smell. For about two months we have been using a liquid preparation known as Johnston's Etherial Antiseptic Soap.* It is superior as a cleanser to lysol, and no odor remains after rinsing the hands. After its use, the hands, also, have a soft, velvety feeling to them. Unlike other soaps, bichloride of mercury solution can be added, if desired, without precipitation, but it is claimed that the preparation itself is a good antiseptic and it has been put on the market principally for surgeons' use.

L. P. B.

* Manufactured by Parke, Davis & Co.

NEW PUBLICATIONS.

ANÆSTHETICS—THEIR USES AND ADMINISTRATION, by Dudley W. Buxton, M.D., B.S., London. Second edition. Philadelphia: P. Blakiston Son & Co., Publishers, 1892. Price, cloth, \$1.50.

There is no subject in dentistry that should be more thoroughly understood than that of anæsthetics and their administration. No one should take the risks of administering any anæsthetic not knowing its character, effects and antidotes. The author in his preface says: "It is surprising that surgeons who have witnessed the attempts of novices to give anæsthetics should hold any view save that no one is capable of safely giving any anæsthetic unless he has been carefully taught, and has obtained considerable experience." The work contains 222 pages. Chapter I. is historical. Chapter II., The Preparation of a Patient for an Anæsthetic and the Choice of the Anæsthetic. Chapter III., Nitrous Oxide Gas. Chapter IV., Ether. Chapter V., Chloroform. Chapter VI., Amylene. Chapter VII., Anæsthetic Mixtures. Chapter VIII., Anæsthetics in Obstetric practice. Chapter IX., Anæsthetics in Special Surgery. Chapter X., Accidents of Anæsthetics, and How to Treat them. Chapter XI., Local Anæsthesia—Cocaine, etc. Chapter XII., Medico-Legal Aspects of the Administration of Anæsthetics.

Dr. Buxton has had an extensive experience with anæsthetics and made the subject a special study for years. In this work he has treated the subject thoroughly, and in such a manner that it

can be readily comprehended by the student. It is a book that will meet the requirements of student and practitioner, and should find a large sale.

A POCKET MEDICAL DICTIONARY. By George M. Gould, A.M., M.D., author of "A New Medical Dictionary," etc. Philadelphia: P. Blakiston Son & Co., Publishers, 1892. Price, \$1.00.

In this book is given the pronunciation and definition of about 12,000 of the principal words used in medicine and collateral sciences, including very complete tables of the arteries, muscles, nerves, micro-organisms, thermo-metric scales, and a dose list of drugs and their preparations, in both the English and metric systems of weights and measures. In size the book is about $6 \times 3\frac{1}{2}$ inches and $\frac{1}{2}$ inch thick. Notwithstanding the apparent thinness, it contains 317 pages. It is printed on thin paper, and bound in a flexible leather binding, so that it does not look or feel bulky. It contains about twice the number of words found in any other pocket dictionary. It has been systematically prepared, and based upon the most recent medical literature. It is a book that every dentist or physician should have, and we dare say that everyone who sends for a copy will consider the money well invested.

QUESTIONS AND ANSWERS FOR DENTAL STUDENTS. By F. J. S. Gorgas, A.M., M.D., D.D.S., Baltimore. Snowden & Cowman, Publishers, 1892. 3 Parts. Price, Part I., \$2.00; Parts II. and III., \$2.50 each.

It is impossible to give an exact idea of all that these books contain, but one can obtain something of an idea from the table of contents here given:

Part I.—(Freshman Course). Anatomy; Dental Physiology and Histology; Dentition; Malformed Teeth; Dental Pathology; Chemistry; Dental Materia Medica and Therapeutics; Operative Dentistry and Prosthetic Dentistry.

Part II.—(Junior Course). Anatomy; Physiology; Materia Medica and Therapeutics; Chemistry; Dental Pathology; Operative Dentistry; Prosthetic Dentistry; Vulcanite and Celluloid.

Part III.—(Senior Course). Dental Pathology; Oral Surgery;

Operative Dentistry; Irregularities; Metallurgy; Prosthetic Dentistry; Continuous-Gum Work; Artificial Dentures of Fusible Alloys; Artificial Crowns on Natural Roots; Gold-Cap Crowns; Bridge-Work; Porcelain Teeth; Atmospheric Pressure, and Deformities of Palate.

Questions and answers are well enough so far as they go, but the answers in many instances are short and incomplete; they embody principally the author's ideas, and in many cases to the exclusion of perhaps better methods and teaching of other instructors. We believe that, where several methods have been advocated or answers have necessarily been short and incomplete if the author had given references to publications where this further information could be found it would have added materially to the value of the series.

PEARSON'S VEST-POCKET APPOINTMENT-BOOK. Kansas City, Mo.:
R. I. Pearson & Co., Publishers.

This little book is a very welcome yearly visitor. It is of convenient size to be carried in the vest pocket, and is arranged for appointments for eight hours every working day in the year. Besides this, the book contains extra pages for memoranda, an erasable tablet, and a pocket on inside of cover for appointment cards. It is complete, and can be procured from the publishers, or any dental depot for 50 cents. With name printed on cover, 75 cents.

THE ANGLE SYSTEM OF REGULATION AND RETENTION OF THE TEETH.
By E. H. Angle, D.D.S. Third edition, revised and enlarged.
Philadelphia: The Wilmington Dental Mfg. Co., Publishers.
Price, 75 cents.

Dr. Angle's method of regulating has received great attention from the profession and is certainly deserving of it. In this book of 51 pages Dr. Angle describes and illustrates his appliances, and many cases from actual practice. To those who do this kind of work the book will be a valuable help.

THE DENTAL TRIBUNE, Louis Ottogy, Editor, Masonic Temple,
Chicago. Price, \$2.00 a year.

This is an eight-page newspaper for dentists, issued weekly. It contains news notes of a general and personal character. With one of the ability and energy of Dr. Ottofy as editor, it is safe to predict that the publication will not lack in interesting reading matter. The new journal has made a creditable beginning, and ought to succeed, but to make the matter sure send your address and \$2.00 to Dr. Ottofy.

ANNOUNCEMENT.—E. B. Treat, Publisher, New York, has in Press for early publication the 1893 "International Medical Annual," being the eleventh yearly issue of this extremely useful work. A glance at the prospectus gives promises that the 1893 issue will be better than any of its predecessors. There are thirty-eight distinguished specialists on its corps of editors, carefully selected from among the most eminent physicians and surgeons of America, England and the Continent. It arranges in a practical way for ready reference what is worth preserving of the year's medical literature, together with a number of important papers specially written; and will contain over 6,000 references to diseases and their remedies; many illustrations in black and colors being used where helpful in explaining the text. The service rendered by this work, giving the year's progress in medicine and Surgery so conveniently and at so low a price (\$2.75) cannot be overestimated.

BOOKS RECEIVED.

Elements of Dental Chemistry and Materia Medica. By J. S. Cassidy, D.D.S. Published by Robert Clarke & Co., Cincinnati, 1893. Price, cloth, \$2.50.

BRIEFS.

— CAMPHOR has been found to possess the power of increasing the solubility of iodoform in alcohol and in ether.

— THE ideal filling is one of cohesive gold throughout, well contoured and anchored in firm tooth substance.—S. B. PALMER.

— A raised rim around the mouth-mirror fits it for carrying and catching amalgam when using in superior teeth.—DR. MAY.

— AN efficient antidote to carbolic acid poisoning is said to be a strong solution of sulphate of soda which forms, with carbolic acid, a harmless mixture.

— INSTEAD of using the homely mixture of gutta-percha and wax in making trial plates, use the pink. It is more sightly and pleasant.—*Dental Tribune*.

— For sensitive dentine take one part of cassia oil to two or three parts of creosote, apply to cavity and use hot air until the mixture boils.—C. R. BUTLER.

— THE impression material should never extend beyond the margin of the cup if we would secure perfect margins to our impressions.—R. R. FREEMAN.

— Take time enough to do your work thoroughly, charge a respectable and just fee, and one great cause of operative failures will be removed.—N. H. SMITH.

— Use a tape moistened with chloroform to finish gutta-percha fillings. It cuts down the material, leaving it smooth, without danger of disturbing the filling.—A. M. HOLMES.

— INDICATIONS for use of varnish under oxyphosphate are sensitive dentine, or near approach to the pulp; no acid excitement is experienced with this cavity lining.—S. B. PALMER.

— WHERE the cavity extends under the gum, make that portion of the filling of gutta-percha, then the remainder of cement, and in that way avoid a common failure.—E. C. BLAISDALE.

— PRESSURE with thumb and finger on each side of socket after extracting a tooth relieves the pain, where there is no inflammation, and lessens the hemorrhage.—R. E. NICHOLLS.

— RUBBER bands, tubes, etc., that have lost their elasticity and easily snap, may be restored by steeping for half an hour in dilute water of ammonia (aq. ammonia, 1 part; water, 2 parts).

— IN cases where it is found imperative to remove the sixth-year molars, it should by no means be done until after the full eruption and occlusion of the twelfth-year molars.—BENJ. LORD.

— WHEREVER collars or partial crowns are used for the support of bridge-work, the less of the tooth that is covered, to secure the necessary strength, the better it is for that tooth.—W. K. SLATER.

— TAKE base-plate, gutta-percha, dissolve in chloroform, allow

the chloroform to evaporate, and you have a gutta-percha for temporary stoppings superior to the usual base-plate.—*Dental Tribune*.

— THIS principle of giving to the profession what you may have found, is right and greatly enriches the giver. Give what you may to the profession, you are still enormously in debt.—E. J. PERRY.

— I don't claim that nothing but the action of acids produce caries, but I do claim that the presence of all parasites in carious teeth is the result of the action of some acid, in the incipency of decay.—R. Y. HENLEY.

— AS a local anæsthetic for extraction of teeth, congested pulps, and in opening abscesses, phenate of cocaine has proved a valuable aid, entirely subduing pain without constitutional impression.—C. B. ATKINSON.

— THE possibility of secondary hæmorrhage is increased when carbolic acid has been used for the antiseptic solutions in a wound. It acts on the clot, rendering it friable and liable to be washed away.—*Med. Jour*.

— TAKE a mouth-mirror handle and frame, fasten a piece of soft sponge in place of the glass and use for moistening corundum wheels and holding the cheek away from them when grinding in the mouth.—H. H. BOSWELL, *Cosmos*.

— THE odor arising from casting a die in sand mixed with oil can be overcome by placing over the moulding ring, a tin can, the vapor of oil is condensed by the cold can and prevented from escaping into the room.—*Dental Tribune*.

— TOOTH filling, as well as plate-making, is too often a mere trade, but properly restoring loss with artificial teeth, with all that is implied in the operation, is the acme of dental art, if there is any *art* in dentistry.—B. J. CIGRAND.

— FOR a temporary filling, beeswax and rosin is good and cheap. Make it of the consistency of good chewing-gum—about 1 to 4, and let the surface of the plug be heated that is first to be passed into the cavity. It will stick, sure.—*Items*.

— I have treated diseased pulps with the nitrate-of-silver crystals very frequently, especially in temporary teeth, where devitalizing pulps with arsenious acid is unsafe, applying the crystals

direct to the exposed pulp, usually with relief to the patient.—
A. M. HOLMES.

— THE essential oils are classified according to their strength as germicides, thus: Cinnamon, fennel, lavender, cloves, thyme, mint, anise, eucalyptus, turpentine, lemon and rose, the last two being very weak in disinfecting power.—*Bact. World*.

IN re-setting a gold filling by means of oxyphosphate, all parts of it should be made bright and clean. The oxyphosphate, mixed very thin, should be placed on the metal, and some in the cavity, which should also be made clean and dry.—S. B. PALMER.

— WHERE an abscess has a fistulous opening and indications are that the trouble is due to irritation from deposit of calculus about the apex of root, pass on engine bur through sinus and smooth end of root thus removing the irritating substances.—H. A. SMITH.

— WE are frequently asked why the D.D.S. degree does not carry more weight in Europe. Our answer is that "the example is set them by some of our States where graduates cannot register without examination." "We are hoist by our own petard." —*Western Dental Journal*.

— ONE need only to study "the geometrical and mechanical laws of the articulation of the human teeth," by Dr. G. W. A. Bonwill, to be humiliated by his past efforts, and inspired by the possibilities that lie before us in this much-neglected branch of our profession.—W. H. GINGRICH.

— SENSITIVE sprouting, due to fracture of the tooth's crown in an attempted extraction, should be obviated by cutting away the exposed part of the pulp with a sharp spoon excavator, under an anæsthetic, local or general, and finally applying strong carbolic acid to the surface.—R. E. NICHOLLS.

— JUST what the chemical reaction of carbolic acid and oil of cassia may be we cannot tell, but it is probable that carbolates are formed of the proteid elements and the liberated hydrogen and oxygen, uniting with the putrefactive gases, destructive acids are formed which act directly upon the micro-organisms.—N. S. HOFF.

— ALL sharp edges of teeth, due to abrasion, should be removed, as they are liable to injure tissues of the mouth. Statistics

show that in 300 cases of cancer of the tongue, on the side and anterior portions that come in contact with the teeth, about 33% were produced by sharp edges of teeth from abrasion.—H. A. SMITH.

— THE truly competent dentist who is a born mechanician will seldom have to resort to a crown of any kind. The more we look at the subject will we find that dentistry is a medley, and no man can be competent to practice it who has not been educated in all its departments to do one as well as another.—W. G. A. BONWILL.

— THE ill-considered remarks of many ignorant or prejudiced writers in American dental journals, are responsible for the low repute in which the American dental degree, and American ethics in general, are held in Europe. These articles are read there, and accepted as faithful delininations of professional affairs here.—W. C. BARRETT.

— THE removal of badly fitting bands and crowns for the cure of inflammation, is frequently necessary, but I am in the habit, when a patient comes to me with inflammation of the gums, of taking a sharp file and filing down all the little inequalities I can find and burnishing the crown over again. Frequently it is all that is necessary.—C. F. HART.

— THERE is nothing more useful for the dentist than a thorough training of the left hand, and no easier or more certain method of training than the use of a drawing pencil. Half an hour daily for a month will make a marked difference in the command over the left hand, and will greatly simplify the work of any operator.—THOS. FLETCHER.

— MR. HENRI WEISS has a mouth-mirror of his own contrivance, the object of which is to set the hand at liberty, and avoid the necessity of frequently taking up and putting down the mirror. The object is attained by means of a ball and socket joint in conjunction with a clamp to be attached, preferably, to the lower first bicuspid.—*Dental Record*.

— THE chemical action of oxyphosphate in hardening softened dentine, specially adapts it for soft teeth. When the dentine has softened quite to the pulp, so that its laminations can be readily raised with the instrument in layers, by all means let it remain undisturbed, rub on a little tannin made into a thin paste with

oil of cloves, and fill with phosphate of zinc. The softened dentine soon becomes "tanned," and a permanent covering made for the pulp.—*Items.*

— In dentistry the most conspicuous characteristics of cocaine intoxication can be observed, as at the base of the mouth the solution is very rapidly absorbed, and this may also explain its rapid production of grave accidents, acting as it does in such cases upon the vicinity of the heart nerve-centers and that of the pneumogastric nerve.—*Gazette Medicale de Liege.*

— A correspondent of the *Scientific American* gives the following harmless process for removing nitrate of silver stains: First paint the blackened parts with tincture of iodine, let remain until the black becomes white. The skin will then be red, but by applying ammonia the iodine will be bleached, leaving white instead of black stains of nitrate of silver.

— I believe that in favorable cases, it is conservative and good practice to band a cuspid or lateral instead of cutting it off, for if the band fails after several years' service, the root is not injured and can be utilized just as well, and will last just as long as if it had not been banded, and all will last much longer than if a plate had been worn in proximity to the teeth.—M. R. HARNED.

—I think it preferable in all cases where the roots can be preserved in a healthy, or even a fairly healthy, condition, to do so; as the tipping of the remaining teeth is thereby prevented, and it is the tipping of the teeth which causes more loss of masticating surface than results from the loss of the crown that has broken away. Other evils also follow the removal of the roots, such as the shortening of the arch, and the weakening of the adjoining teeth from the loss of the alveoli.—BENJ. LORD.

SOCIETIES.

NORTHERN OHIO DENTAL SOCIETY.

THE 34th annual meeting will be held at Akron, Ohio, May 9, 10, 11, 1893.

PROGRAM.

1. The President's Address, "Landmarks."
2. "Chemistry of the Mouth," Geo. H. Wilson, Cleveland.

Discussion opened by W. A. Siddall, Oberlin; J. W. Jungman, Cleveland.

3. "Artificial Crowns," D. A. Allen, Toledo. Discussion opened by Thos. H. Whiteside, Youngstown; J. E. Robinson, Cleveland.

4. "New Remedies and their Application," L. P. Bethel, Kent. Discussion opened by J. F. Dougherty, Canton; S. A. Pancoast, Ashtabula.

5. "Queries:" Answered by F. S. Whitslar, Youngstown. All questions must be handed to the Corresponding Secretary before March 1st, 1893.

6. "Popular Dental Education," L. L. Barber, Toledo. Discussion opened by L. W. Ballard, Alliance; H. G. Husted, Oberlin.

7. "Non-Cohesive Gold and Tin"—(Talk), Corydon Palmer, Warren.

8. "The Code of Ethics," W. T. Jackman, Cleveland. Discussion opened by W. P. Horton, Cleveland; A. J. Douds, Canton.

9. "Hard Deposits Within the Pulp Cavity," S. B. Dewey, Cleveland. Discussion opened by C. R. Butler, Cleveland; F. H. Waldron, Canal Dover.

10. "Prosthetic Dentistry," J. F. Stephan, Cleveland. Discussion opened by F. D. Davis, Minerva; W. H. Fowler, Painesville.

11. "Anæsthetics," J. R. Owens, Cleveland. Discussion opened by J. F. Siddall, Oberlin; J. E. Phelps, Chagrin Falls.

12. (1) "Is it a fact that the first permanent molar in particular, but also both the first and second molars are, as a rule, the first of the permanent set to decay; and does this occur in a majority of cases as early as from twelve to fifteen years? (2) If this be a fact what is the cause and how can it best be prevented?" E. J. Wayne, Sandusky. Discussion opened by W. B. Connor, Akron; Theo. J. Phillips, Canton.

13. Voluntary Papers.

14. "Incidents of Office Practice." General Discussion.

15. Clinics—A new Band Attachment for Bridge-Work Tempering Instruments. Grant Mitchell, Canton.

You are cordially invited to be present. If you have anything of interest, please bring it with you.

HENRY BARNES, Cor. Sec'y.

CHANGE OF DATE OF THE WORLD'S COLUMBIAN
DENTAL CONGRESS.WILL BE HELD AUGUST 14TH TO 19TH, 1893.

THIS communication, just received from Dr. A. O. Hunt, is self-explanatory :

"The following communication was received from President Bonney, of the World's Congress Auxilliary which necessitates a change in the time of meeting, and also a re-arrangement of the order of business for the World's Columbian Dental Congress.

"The Dental Congress has been assigned to the week commencing Monday, August 14th, 1893. The Congresses of Science and Philosophy have been assigned to the week commencing Monday, August 21st, 1893. With more than a hundred Congresses to provide for, you will readily understand the extraordinary difficulty of making suitable arrangements for each, but the extra provision which has been made for the places of meeting will render practicable arrangements which under the ordinary circumstances would be simply impossible. When the Congresses were first proposed we expected to have only one large audience room with a suitable number of smaller halls; but as the World's Congress work enlarged, the places of meeting were also made more adequate. As the World's Congress Art Palace is now planned, there will be two large audience rooms capable of accommodating three thousand persons each, and more than twenty smaller halls, which will seat from three hundred to seven hundred persons each, thus providing for no less than thirty-six large meetings, and three hundred and sixty smaller meetings in a single week, by holding morning, afternoon and evening sessions. Among the other Congresses assigned to be held in parallel with the Dental Congress are those of Pharmacy, Medical Jurisprudence and Horticulture. For all these the accommodations will be adequate. You understand, of course, that everything in the nature of an exhibit is required by the Exposition authorities to go to Jackson park. The Congresses deal not with things, but with men; not with matter, but with mind."

In accordance with the above statement, the time of meeting will be from Monday, August 14th, to Saturday, August 19th, inclusive.

DENTAL SECTION OF ELEVENTH INTERNATIONAL MEDICAL CONGRESS.

THIS Congress will be held in Rome, Sept. 24th to Oct. 1st, 1893. It is desired that as many American dentists as possible attend. Dr. N. W. Kingsley, 115 Madison avenue, New York, is a member of the American National Committee, and will give further information to all interested.

WORLD'S COLUMBIAN DENTAL CONGRESS.

ADDITIONS MADE TO THE STANDING COMMITTEES.

COMMITTEE ON CONFERENCE.

C. N. Peirce, Philadelphia, Pa.; A. Warner, Jr. San Francisco, Cal.; G. H. Cushing, Chicago, Ill.; J. N. Crouse, Chicago, Ill.; W. Herbst, Bremen, Germany; Wm. Jarvie, Brooklyn, N. Y.; R. E. Watkins, Eutaw, Ala.; S. B. Brown, Ft. Wayne, Ind.; S. A. Main, New York City, N. Y.; H. A. Smith, Cincinnati, O.; C. R. Butler, Cleveland, O.; Chas. J. Essig, Philadelphia, Pa.; James Truman, Philadelphia, Pa.; Garrett Newkirk, Chicago, Ill.; A. R. Eaton, Elizabeth, N. J.; W. J. Younger, San Francisco, Cal.; H. M. Hunter, San Antonio, Tex.; W. R. Patton, Cologne, Germany; F. H. Balkwill, Plymouth, England; R. T. Stack, Dublin, Ireland; W. B. Pearsall, Dublin, Ireland; Henry Sewill, London, England; B. A. Muckenfuss, Charleston, S. C.; W. E. Magill, Erie, Pa.; C. C. Chittenden, Madison, Wis.; Frank Abbott, New York City, N. Y.; C. E. Francis, New York City, N. Y.; J. L. Williams, Boston, Mass.; E. A. Bogue, New York City, N. Y.; P. G. C. Hunt, Indianapolis, Ind.; J. E. Cravens, Indianapolis, Ind.; E. H. Angle, Minneapolis, Minn.; L. Holländer, Halle, Germany; W. Campbell, Dundee, Scotland; S. B. Cook, Chattanooga, Tenn.; W. T. Arrington, Memphis, Tenn.; B. G. Maercklein, Milwaukee, Wis.; A. W. Nason, Omaha, Neb.; S. J. Barber, Portland, Ore.; C. S. Case, Jackson, Mich.; L. C. Ingersoll, Keokuk, Ia.; Wm. Taft, Cincinnati, O.; J. Hayhurst, Lambertville, N. J.; A. O. Rawls, Lexington, Ky.; J. N. Farrar, New York City, N. Y.; E. T. Darby, Philadelphia, Pa.; G. W. Rembert, Natchez, Miss.; Louis Augspath, Little Rock, Ark.; W. G. A. Bonwill, Philadelphia, Pa.; T. B. Welch, Vineland, N. J.; Geo. Watt, Xenia, O.; E. E. Hill, Brooklyn, N. Y.; M. Delapierre, Brussels, Belgium; C. Van der Hoeven, Haag, Holland; R. Skogsborg, Stockholm, Sweden; Julius Scheff, Vienna, Austria; Wm. Alfred Hunt, Somersetshire, England; C. F. Rich, Saratoga, N. Y.; Wm. Edward Harding, Shrewsbury, England; J. L. Fraser, Inverness, Scotland; Julius Parreidt, Leipzig, Germany; Carl Kaas, Christiania, Norway; V. E. Turner, Raleigh, N. C.; A. A. Dillehay, Meridian, Miss.; J. J. Andrew, Belfast, Ireland.

No. 2. PROGRAMME COMMITTEE.

Chairman, C. N. Johnson, Chicago, Ill.; J. A. Dunn, Chicago, Ill.; Geo. Eubank, Birmingham, Ala.; J. W. Wassall, Chicago, Ill.; Geo. Hardy, Baltimore, Md.; Louis Ottofy, Chicago, Ill.; L. P. Bethel, Kent, O.; E. J. Rippier, Brooklyn, N. Y.

No. 3. COMMITTEE ON EXHIBITS.

M. L. Rhein, New York City, N. Y.; A. W. McCandless, Chicago, Ill.; R. C. Young, Anniston, Ala.; James Chace, Ocala, Fla.; W. A. Campbell, Brooklyn, N. Y.

No. 4. COMMITTEE ON TRANSPORTATION.

John C. Storey, Dallas, Tex.; H. A. Fynn, Denver, Col.

No. 5. COMMITTEE ON RECEPTION.

Chairman, J. A. Swazey, Chicago, Ill.; E. D. Swain, Chicago, Ill.; M. V. Toledo, New York City, N. Y.; A. E. Baldwin, Chicago, Ill.; A. F. Emminger, Columbus, O.; T. L. Gilmer, Chicago, Ill.; H. J. Burkhart, Batavia, N. Y.; F. N. Browne, Abilene, Tex.; J. W. Taylor, New York City, N. Y.; Geo. L. Field, Detroit, Mich.; F. E. Howard, Buffalo, N. Y.; A. H. Fuller, St. Louis, Mo.; H. W. Shriver, Omaha, Neb.; R. K. Luckie, Holly Springs, Miss.; C. S. Searles, Dubuque, Ia.; L. D. Shepard, Boston, Mass.; J. P. Geran, Brooklyn, N. Y.; R. M. Streeter, New York City, N. Y.; Thos. E. Weeks, Minneapolis, Minn.; Chas. H. Darby, St. Joseph, Mo.

No. 6. COMMITTEE ON REGISTRATION.

W. W. Hill, Washington, Ga.; Chas. L. Dubar, New York City, N. Y.; S. W. Foster, Decatur, Ala.; H. N. Young, Wilkes Barre, Pa.; G. Carleton Brown, Elizabeth, N. J.

No. 7. COMMITTEE ON PRINTING TRANSACTIONS.

A. W. Harkan, Chicago, Ill.; Edward C. Kirk, Philadelphia, Pa.; Louis Ottofy, Chicago, Ill.

(To be continued.)

OUR AFTERMATH.

SOUTHWESTERN OHIO DENTAL SOCIETY, Camden, May 16, 1893.

NORTHERN OHIO DENTAL SOCIETY meets at Akron, May 9, 1893.

GYPSUM, it is said, has been discovered in Morris county, Kansas.

WORLD'S COLUMBIAN DENTAL CONGRESS, Chicago, August 17, 1893.

DR. H. E. DOUGLAS, formerly of Alpena, Mich., is now located in Springfield, Ohio.

DR. J. R. CALLAHAN, of Cincinnati, is again one of the bassos of the Apollo Club chorus of that city.

"WHEN I was young we prepared students for life; now we prepare them for examinations."—JULES SIMON.

THANKS.—"The newly-dressed JOURNAL looks nice and bright. I wish you much success," writes a contributor.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS—The oldest in the world—meets in Cincinnati, March 8, 1893.

DR. E. PARMLEY BROWN, New York City, has removed to "The Madrid," 180 West Fifty-ninth street, Central Park, South.

SURE CURE.—*Jack Hardup*: "What's a man to do, Doctor, when he can't eat beefsteak without getting neuralgia in his jaws?"

Dr. Portly: "H-m; I'd recommend him to change his boarding house."
—*Life*.

DR. E. C. HAMILTON, of Washington C. H., Ohio, is an aide-de-camp on the staff of the Commander-in-chief of the Grand Army of the Republic.

DR. MILLMAN, of Chillicothe, Ohio, while sleigh-riding January 4th, was thrown out and both bones of his right leg broken just above the ankle.

THE DENTAL PROFESSION to-day is the equal of the medical profession in its ability to alleviate pain and give relief to the suffering.—*Ed. The Dental Tribune*.

MARRIED.—Cincinnati, December 14th, 1892. Milton Paul Randell, of Chicago, and Gracie Rogers James, daughter of Dr. and Mrs. C. H. James, Walnut Hills.

EACH practice is dependent upon and takes character from the personality of the operator. One may control his practice or be controlled by it, mainly as he himself possesses or lacks individuality.—C. B. ATKINSON in *Cosmos*.

DENTISTS LIKEWISE.—"Yes, sah, some habbabs may be jus' as good as others, on'y they don't suit some men. You see it's a question of pussonal magnitude; a habbah may not be of the right temperatnah to suit a customer."—*Life*.

WE acknowledge receipt of cards announcing the marriage of Dr. P. H. Morrison, son of Dr. W. N. Morrison, St. Louis, Mo., to Miss Mary Marriott, on Wednesday, Dec. 28th, 1892, near Sulphur Springs, Mo. Accept hearty congratulations.

PROF. A. W. HARLAN, of Chicago, read a paper at the meeting of the N. Y. First District Dental Society, January 10th, in which he sought to destroy the Bodecker-Herbst cobalt method of treating dental pulps. The paper was a bright satire, but not convincing.

DIED IN A DENTIST'S CHAIR.—In New York city, Nov. 30, 1892, ten-year-old Meyer Greenberg had an aching tooth extracted by Dr. Samuel Randel, followed by hemorrhage, and, although physicians made efforts to stop it, he bled to death in twenty minutes.—*Daily Paper*.

A COMMENDABLE IDEA.—The senior class of the Chicago College of Dental Surgery has organized a society "to listen to papers read by its members, on subjects pertaining to the profession, and thus acquaint themselves with society work, in order to be better able to participate in such after leaving college."

THE DENTAL TRIBUNE'S portraits of prominent dental society officials and specialists in dentistry are interesting. They confirm the belief that all dentists are good-looking. We are certain Dr. Ottofy's readers would take more interest in his journal if it contained the editor's portrait.

CHARLES A. VANDUZEL, a St. Paul, Minn., dentist, obtained judgement against one Wm. J. Woolsey for a balance of \$50 on a set of teeth on a gold plate. Later he assigned it to David Nesmith, who took out an execution and Judge Otis granted an order to show cause why Woolsey's teeth should not be sold to satisfy the judgment.

CRYSTALIZED ALUMINA is corundum, and the gems comprehended under this designation are sometimes more valuable than diamonds of the same weight. The ruby, the sapphire, the oriental emerald, the oriental topaz, the oriental amethyst, the oriental aqua marine, the oriental chrysolite, the hyacinth, and other precious stones, are all alumina, the varieties of color being caused by inappreciable quantities of metallic oxides.—*Exchange*.

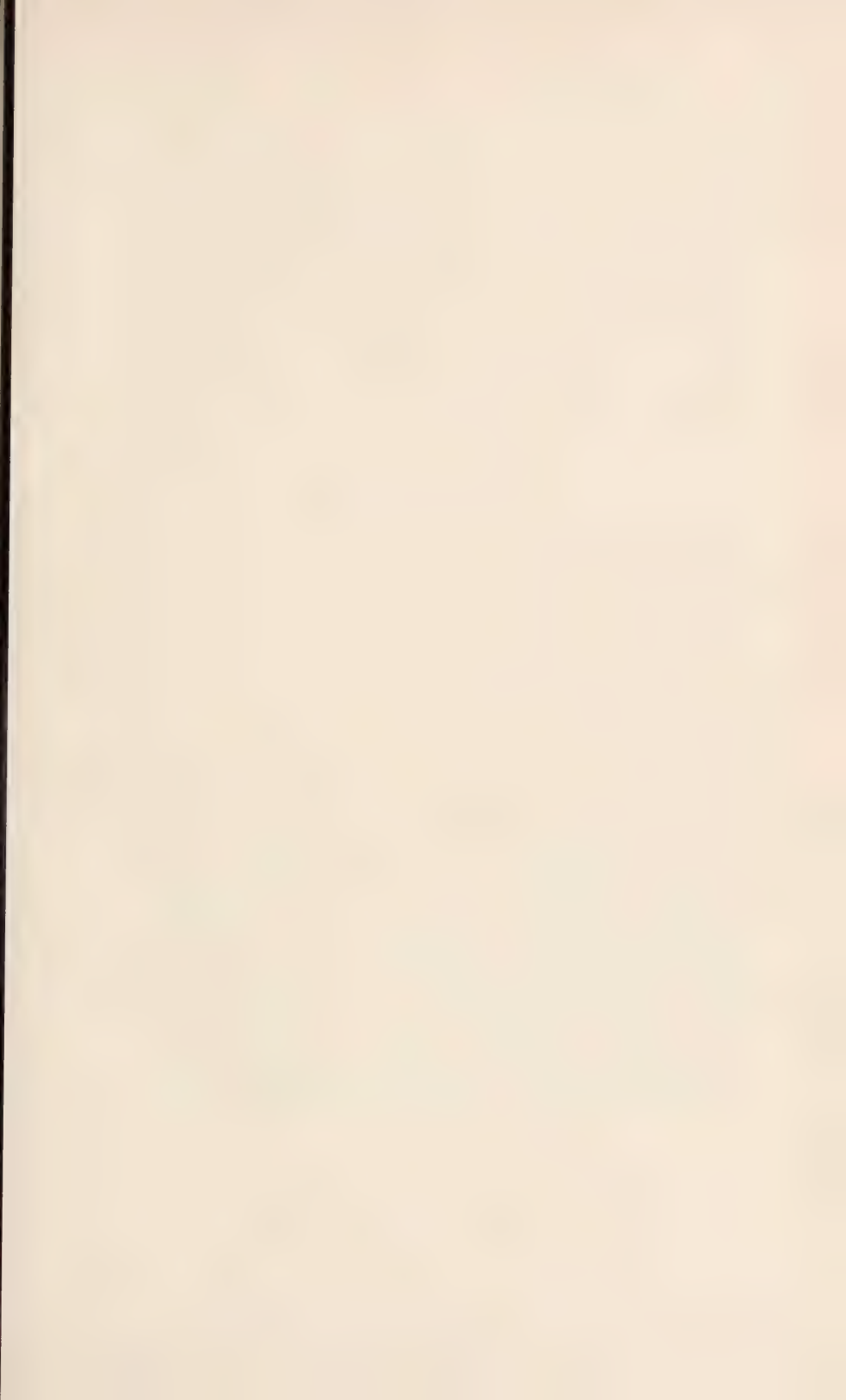
SEILER'S antiseptic and alkaline tablets contain sodium bicarbonate, borate, benzoate, salicylate and chloride; eucalyptol, thymol, menthol and oil gaultheria. We prescribe them as a mouth-wash, with uniformly good results, for sensitiveness of the teeth in cases of extensive erosion; in pyorrhœa alveolaris, catarrhal cases, and as a prophylactic in the mouths of women during pregnancy, when their teeth are most in danger at the lingual gum line. The solution is made by dissolving one tablet in from two to four ounces of warm water.—W. H. S.

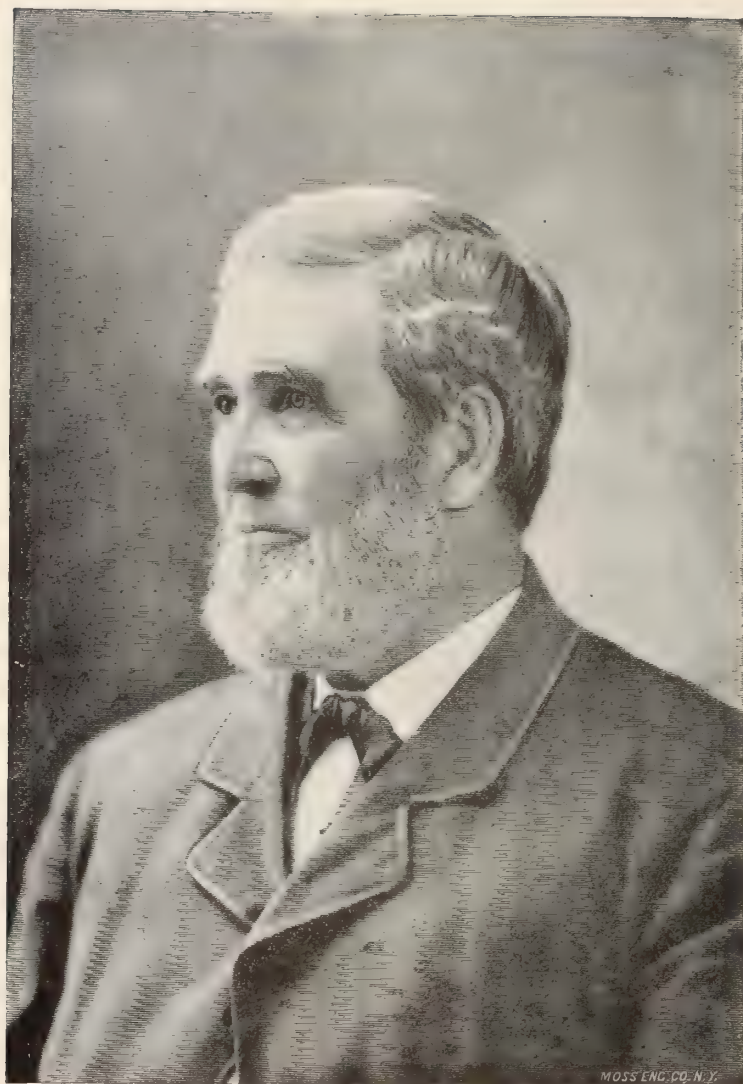
DR. WM. E. PILCHER, of Elgin, Ill., is preparing a series of lectures to be given before the students of the American Dental College, Chicago. The subjects are Dental Law, Dental History and Dental Ethics. This is a step in the right direction, and we would suggest a fourth lecture on Dental Societies—the foundation-stones of the dental schools and of the progression of our profession to its present high plane. Yet the membership of our societies does not equal the annual output of the colleges. We understand that Dr. P. is open to engagement to deliver the lectures in any reputable college.—W. H. S.

PUBLISHERS' NOTICE.

TO OUR READERS:

It has always been our custom to continue the OHIO JOURNAL to subscribers unless requested to discontinue, as most of them have said to continue until forbid. We do not want to force the JOURNAL upon anyone; and if there are any readers who do not want it continued during 1893 they will confer a favor by so advising us. It is our aim to keep the JOURNAL in the front ranks of dental journalism, and make it well worthy a place in the office of every dentist.





Geo. Watt.

THE OHIO DENTAL JOURNAL.

VOL. XIII.

MARCH, 1893.

No. 3.

IN MEMORIAM.

DR. GEO. WATT.

DIED, at Xenia, Ohio, February 16th, 1893, of locomotor ataxia, Dr. Geo. Watt, M.D., D.D.S., in the seventy-third year of his age.

It is with sorrow that we record the death of the senior editor of the OHIO DENTAL JOURNAL. So affable; so kind; to know him was to love him. Few have realized the years of suffering he endured, and with what patience and fortitude.

When death comes early—crushing the budding loveliness of childhood, or treads upon the opening blossoms of youth, or even when it tramples upon the vigorous strength of manhood, the natural grief that we feel is aggravated because the event seems untimely and the affliction too severe; but when the pale messenger lays his hands upon a life accomplished—a life rounded out with the years which experience and inspiration have assigned as a limit of human duration—when, as in the case of our deceased friend, these years have been occupied with usefulness

and rewarded with success, when the "shock of corn is fully ripe," we may grieve at our personal loss, but we may not complain. To complain of such a death is to complain of the laws of our existence. To such a life as our friend's, praises, honor and thankfulness are due from us. With our grief that he has died shall be mingled our thankfulness that he lived.

The events of his life are so well described in an article written by Dr. J. Taft, for and printed in the *JOURNAL* of January, 1888, that we reproduce it:

"Doctor George Watt was born on March 14th, 1820, on a farm eight miles east of Xenia, Greene Co., O. His father, Hugh Watt, was born in the north of Ireland, of Scotch parentage; his mother was a native of western Pennsylvania, and was of Scotch parentage also. This portion of Green Co., at the time this home was established, was comparatively new country; many of the animals of the native forest were still there. Dr. Watt remembers seeing wild deer, wolves, bears, catamounts, wild turkeys, foxes, etc., on the land that then constituted their farm.

He first entered a country school at seven years of age. Schools at that time were very primitive and were generally continued only for three or four months during the year. He remained at the family home till October, 1835, when he left, and went to Adams County, O., to enter a boys academy, established and conducted by Rev. Wm. Taylor. He entered upon his course, agreeing to pay his way, including boarding and tuition, by services such as he could render on the farm, and in connection with the school. He pursued his studies with great industry and made rapid progress notwithstanding he devoted about one-third of his time to work upon the farm.

This kind of life, away from home and its kindly influences, was a new experience to him; he found an absence of the home surroundings and the sympathy and affection he had so fully enjoyed in his father's house. The treatment he received made the greater impression upon him from the fact that he had not a strong constitution and was often sick. Unfortunately his feeble condition was sometimes regarded as feigned, and because of this he was often-times taxed much beyond his real strength. He had several severe illnesses, and in two or three instances he was supposed to be past recovery. After remaining in the academy two years he engaged in teaching, but a few miles distant from

the academy. He was thus engaged for three or four years; a part of this time, however, in the neighborhood of his father's home. In 1840 he entered a college at Ripley, Brown Co., O., and remained about a year, leaving there in 1841, returned to Greene Co., and there engaged in teaching and the study of medicine, in which he had the late Dr. Samuel Martin, of Xenia, for his preceptor, with whom he not only had superior instruction in medical science and practice, but also had there inculcated, in a receptive mind, the views of the dignity and importance of medical science and practice that have ever characterized him, from that time to the present.

He practiced with and for his preceptor about one year; after which he removed to Bentonville, a small town in Fayette Co., Indiana, where he soon established an excellent practice, especially for a new country. Not being satisfied with his attainments in medical science, he entered the Medical College of Ohio in 1846, and graduated in March, 1848.

April 17th, 1845, he was married to Miss Sarah Jane McConnell, who was a native of Greene County, Ohio, and had always resided with her father's family near Xenia. She as well as the subject of this sketch was the youngest of a large family. The two families here referred to were for a long time neighbors and intimate friends, indeed they journeyed together in coming to Ohio.

After the completion of his medical course, he continued the practice of his profession in Indiana about one year. Near the close of 1848 Mrs. Watt was poisoned by taking arsenic which had been concealed in an apple, intended as was supposed, for the Dr. himself; the case came well-nigh being fatal; recovery from this was slow and the result, as to recovery, was for a long time in doubt. This condition of affairs made it necessary for the Dr. to leave his practice and return to the former home of Mrs. Watt. This change of matters brought him to the practice of medicine in Xenia, in which he remained till the spring of 1850, when he removed to Kenton, Ohio, where he continued in practice about two years. About this time his love for and inclination to special scientific pursuits began to be rapidly developed, as was shown by various investigations in which he engaged.

Early in the year 1852, he entered upon the study of dentistry, he was well prepared for such a course of study, by his

medical knowledge. After some time devoted to this specialty, he formed a co-partnership with J. Taft, of Xenia, Ohio, for the practice of dentistry which continued for many years. One branch of science to which Dr. Watt had given much attention, during and after his medical course, was chemistry. Some idea of his proficiency in this direction will be apparent when it is remembered that he had an unusual aptitude in and liking for this branch, and also that he had for his preceptor that noted chemist and philosopher, the late lamented Professor John Locke, who was for many years a teacher in the Medical College of Ohio. In 1853 he prepared and delivered a course of lectures on chemistry in the Ohio College of Dental Surgery. And though Dr. Elijah Slack, M.D., LL.D., had delivered a course of lectures on chemistry in the same institution for one or two years before, yet this effort of Dr. Watt was the first attempt to adapt a course of lectures on chemistry to the need of the dental students, and he was the first to prepare and deliver such a course. All work in this line done before him was simply such as was given to medical students. During the time in which this course was delivered, he was not only a teacher hewing out a new course for himself, but he was a member of the class he taught, so that he was in the double capacity of a teacher and a pupil.

He graduated with his class, receiving the degree of Doctor of Dental Surgery at the close of the term of 1854.

And though he was a graduate of medicine, with quite an extensive and varied experience in its practice, and had given more than one year's time to the study of dentistry, and was a teacher of acknowledged ability, yet, at the time of his graduation, he passed the same examination as the other members of his class. Immediately after this he resumed the practice of dentistry with Dr. Taft. So well recognized was his ability as a teacher, that he was not long permitted to enjoy the quiet and comfort of a town and country practice, for in the spring of 1855 he was elected Professor of Chemistry and Metallurgy in the Ohio College of Dental Surgery, which position he occupied for several years, and the result achieved by him during this time, in the development of the application of chemistry to dental science and art, has never been excelled if equalled in the same length of time by any teacher in any other branch. He was the pioneer in directing the attention of the profession to chemistry, as one of the chief factors in dental art and science.

He became a member of the Mississippi Valley Dental Society in 1852. In 1854 a prize of one hundred dollars was offered for the best popular essay on Dental Surgery.

Dr. Watt was a competitor for this prize, and after a thorough examination of all the papers presented, it was unanimously awarded to him. He was for several years secretary of the body, and after many years of service in almost every other capacity, he was elected its president.

In 1856 he was a member of the American Dental Convention (the largest dental body then in existence) held at Hope Chapel in New York.

At the meeting he read a paper on "Topical Remedies," which was extensively published and elicited much attention and discussion, and at the time of its reading drew forth quite a varied discussion. The article is contained in Watt's "Chemical Essays," and is also published in the tenth volume of the *Dental Register*.

He with Dr. Taft, became the owner and editor of the *Dental Register of the West*. This relation was maintained for many years and was only relinquished when Dr. Watt's failing health rendered it imperative. But he has always and even after this severance, been a liberal contributor to the literature of the profession.

He with Doctors Taft and Hammill, established an office for dental practice in Cincinnati, in 1855. This relationship was only sustained for two or three years, the sudden death of Dr. Watt's father made it necessary for him to remove to Xenia, Ohio, when he entered the office and continued the practice that had been established many years before. About this time he made some experiments in micro-photography that were in advance of anything that had been accomplished, and perhaps even attempted up to that time.

In the autumn of 1860, in the time of the great trial of our nation, he promptly tendered his services so far as possible for its rescue; however, he was not accepted until May, 1864, when he was made surgeon of the 154th regiment of Ohio Volunteer Infantry.

His efficiency in that position will be well understood, when it is stated that the sanitary record of his charge was better than that of any other Ohio regiment.

He was mustered out September, 1864, after being disabled

by an injury to the spine, having been crushed by a falling wagon, which resulted in locomotor ataxia.

After his return from the army he entered into practice, as his feeble health would permit.

In the autumn of 1865 he formed a partnership with Dr. N. W. Williams, after which they conducted a practice in Xenia for about one year, and they established a branch office in Cincinnati of which Dr. Watt took charge.

In 1868 the firm of Watt & Williams purchased the dental depot of J. S. Walters & Co., of Cincinnati. This business they conducted successfully in addition to their dental practice for about three years, when they sold the depot to Spencer & Moore. During this last residence in Cincinnati, his health and strength had gradually become much impaired, and after disposing of his commercial enterprise and resigning his position in the college, where he had been teaching for three years, he closed his city office, and on September 30th, 1871, removed to Xenia, where he hoped to have respite from active labor, but his active brain would not permit much rest.

In the spring of 1872 the firm of Watt & Williams was dissolved, Dr. Williams going to Europe. Dr. Watt found himself unable to carry on the large practice then on his hands, and so he formed a partnership with Dr. D. G. French, which continued a little less than one year, after which he formed a partnership with Dr. E. G. Betty, of Cincinnati. This relation was also continued about one year, after which a partnership was formed with Dr. W. H. Sillito, and the business was conducted some two or three years by the firm of Watt & Sillito.

During all of this time his health was becoming more feeble and his strength at times seemed well-nigh gone, and it was deemed best that he should retire and no longer attempt the active duties of practice. But he was not content to be idle. In 1881 he took the editorship of the OHIO JOURNAL OF DENTAL SCIENCE, a monthly journal of about fifty pages, and what it has been from the beginning to the present, we need hardly attempt to describe here; sufficient to say that it occupies an enviable position with its compeers; its pages are always freighted with matter of interest and profit, and not the least of this, by any means, is from the editor. The editorials are always rich in thought, and clearly characteristic of the man even in his best days.

During the time of this work he has been a marvel to all who knew of his condition. Clearly, his brain has not shared in the debility which has seemed to pervade all the rest of his organism.

In 1867 he published a volume entitled "Watt's Chemical Essays," in which are published the principal papers which he has written on dental chemistry.

Quite a number of these papers have been published in various journals, not only of the dental but the medical profession as well, and even in some of the leading newspapers of the country. Unfortunately, the syllabus of his series of lectures on chemistry has never been published.

He has occupied a number of positions of prominence in addition to those already named. He was Vice-President of the American Dental Convention; he was elected President of the American Dental Association on the same day he became a member, the only instance of the kind on record. He was President of the Ohio State Dental Society the first two years of its existence; was twice President of the Mad River Dental Society. In every responsible position he ever occupied, the duties devolving on him were discharged faithfully and efficiently.

Dr. Watt was one of the most easy, fluent and accurate writers in the dental profession; his literary taste was formed upon a high model, and was all that could be expected of one of the highest literary and classical culture. In his case it was rather inborn than acquired, though as some explanation, it may be said that his reading in early life was confined to the purest and best of English literature."

Dr. E. G. Betty says:

"He was a memorable character in many ways; good, true and manly. He was the only living descendant of James Watt, the perfecter of the steam engine, having been grand-nephew to the great inventor. A cousin of James Watt, also named James Watt, was, by Dr. Watt, credited with having discovered the composition of water, though popular history gives that honor to James Watts, the physicist. The Royal Society of London presented James Watt (presumably the engineer) with a silver medal, in commemoration of that event, though the humbler cousin was the real discoverer of that great fact; the medal is now in possession of Dr. Watt's heirs.

Dr. Watt enjoyed the distinction of being one of the earliest practitioners of dentistry in this country, having been a graduate of the Ohio Medical College and the Ohio Dental College fifty years ago. His writings and teachings have done much to forward the science of medicine and dentistry, being the first to formulate a theory of decay of the dental organs. As an editor and writer he was without a superior."

Dr. W. H. Sillito writes:

"Dr. Watt's last illness dates from December 26th, 1892. Since then he has gradually failed. The last dental meeting he attended was the 7th District, at Xenia, May, 1891. He claimed priority in the discovery of the property of cohesion in gold at ordinary temperatures (in his crystal gold at Baltimore in 1853), hot air syringe* for drying cavities, just after the meeting of the American Dental Convention at Cincinnati, in 1855; also one of the first specimens of vulcanizable gutta-percha was made by Dr. W., and is in the possession of the writer. He designed the double hook elevator now sold by R. & R. for extracting lower molar roots; also Watt's metallic base and flask."

Dr. N. S. Hoff:

"I personally feel the great loss of a friend and have always looked up to him with love and admiration,"

Dr. J. Taft:

"It breaks a bond of friendship that has existed for more than sixty years."

His widow, Mrs. S. J. Watt, and their adopted daughter, Mrs. Sillito, are the only survivors of his immediate family.

Dr. Watt was a member of the Third U. P. church, and had been a christian from his youth up.

The funeral services were held at his late residence on Saturday morning, February 18th. Burial private.

L. P. B.

At a meeting of the stockholders of the Ransom & Randolph Co. the following resolutions were adopted:

INASMUCH as it was through the influence of Dr. George Watt that the OHIO DENTAL JOURNAL was started, and through his untiring efforts that it

* See page 172 of Vol. I of the JOURNAL.

was brought to the high standard it has borne for years and to the front ranks of dental journalism, be it

Resolved, That we, as publishers of said journal, here express the fond appreciation that we have felt for him for his efforts in our behalf; and also be it

Resolved, That we tender to the bereaved family our sincere sympathy in the hour of their sad affliction. Be it further

Resolved, That these and other resolutions pertaining to our deceased friend be appropriately printed in the OHIO DENTAL JOURNAL, and a copy of them sent to the remaining members of his family.

The Faculty of the College of Dental Surgery, University of Michigan, sends the following tribute:

"In the death of Doctor Geo. Watt, of Xenia, O., the Faculty of the College of Dental Surgery of the University of Michigan feels, in addition to the personal sense of loss of each member, that the dental profession of the world is called upon to mourn his departure; and that teachers and educational institutions everywhere acknowledge their indebtedness to him for his devotion to the scientific as well as the technical departments of our profession.

His love and work for the dental profession has endeared him to all its members, and they will always remember him with a peculiar appreciation. A good and great man has gone from among us.

It is with profound sorrow that we learn of his death, and we most cordially extend to his bereaved family our sincere sympathy in their great sorrow.

Signed:

J. TAFT, *Dean*,
N. S. HOFF, *Secretary*.

February 16th, 1893."

CONTRIBUTIONS.

UNNECESSARY BURDENS OF DENTAL STUDENTS.

BY L. P. HASKELL.

THE simple process of swaging an upper plate is herewith made a burden for the student:

Ques. Describe process of swaging a full upper plate? *Ans.* Place die on bench with plaster model near, on which is marked outline of plate; anneal the metal by placing it on a support of plumbago or charcoal, and by means of blow-pipe heat it (if gold) to a cherry red (less if silver), and plunge it in cold water to cool it; then place annealed plate in proper position over face of die; hold it firmly with one hand, and with a wooden or horn mallet form first the center of the plate over the hard palate, until this part is well driven down and adapted to surface of die; repeated annealings of plate may be necessary to accomplish this, but before each annealing the plate should be subjected to the acid bath (sulphuric acid, 2 parts, water 1 part) to remove any particles of zinc, and, after swaging, any particles of lead that may adhere to the plate; then bend down with mallet the outer edges of plate over the ridge, far enough to meet outline drawn on plaster model; when plate is well adapted to face of die, and especially central portion, it is again annealed and carefully placed between die and counter-die; if the outer edges are carefully and slowly, with repeated annealings, worked by mallet over ridge, there need not be any folds or creases: some prefer placing several thicknesses of soft paper between die and plate; then place them, with die down, on an anvil, holding the die with the left hand, and strike the die a light blow with a hammer of three pounds weight, with handle one foot long; Separate the dies, loosen plate from counter-die, and examine to see that it has not moved out of position; if not, return plate to dies, and strike several moderately heavy blows, repeat annealing and return plate, and strike heavy, fair, sharp, evenly distributed blows.

Ques. How may the force of the heavy blows be evenly distributed, and the base of die be uninjured? *Ans.* By using a cone of zinc or iron, with a base nearly equal to that of the die and several inches long, with a flat apex, on which to strike with hammer.

Ques. How should the Gilbert vacuum cavity be formed in the plate when swaging? *Ans.* By defining the form when central portion of plate is adapted to die, and afterwards, during swaging, using chasers made of hard wood, bone or ivory, carefully thinning and rounding edge of each, and frequently renewing the edge, which is one-quarter inch wide; place the edge of the wooden chaser in the imprint of the vacuum cavity, and, holding it at right angles, strike light, rapid blows on the end with a mallet, repeating by

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passing around the chamber or cavity with the instrument until outline of cavity is sharply defined and the metal not indentated or bruised; a chaser made of soft rose-copper answers well as a finisher if carefully used.

“Ques. How is the Cleveland vacuum cavity formed in plate? Ans. First make copper model of size and shape of cavity, and as thick as depth of the cavity desired; form over this copper model a cap of gold, with a flange, by swaging it between dies, when temporarily attached to die by wax, with copper model under it resting on die at location of vacuum cavity; make edges smooth and slightly beveled, the edges of cap extending in form of a flange, one-sixteenth of an inch wide, beyond copper model; an opening is cut in plate at location of vacuum cavity, as large as the copper model, and the cap soldered over it by means of the flange which overlaps the opening in plate.

“Ques. What is claimed for the Cleveland vacuum cavity? Ans. That the edges can be made to fit roof of mouth accurately; that even in soft mouths the mucous membrane never fills up the cavity, as there is always space left around the chamber; that no irritation of membrane occurs if all edges are rounded and not left sharp.

“Ques. Is it ever necessary to cut out V-shaped pieces of plate and afterwards solder edges, in swaging outer rim over ridge? Ans. No, if the plate is slowly and carefully worked over the ridge.

“Ques. How should the swaged plate be finished? Ans. Trim edges according to outline; bevel and burnish edges, and place plate in acid bath to remove marks of fire.

“Ques. How may an accurate adaptation to die be determined? Ans. Pressure on front of ridge and on back edge of plate, and around top of ridge with fingers should not cause any motion of plate on die.

“Ques. How may slight inaccuracies of fit be remedied? Ans. Locate point in fault, and place several thicknesses of soft paper over point where plate binds, and again swage by light, solid blows.”

The following questions and answers cover the same ground:

1. Describe the process of swaging a full upper plate?

Ans. Anneal the plate by heating to a red heat, and put in sulphuric acid to clean the oxydized surface; oil the dies to prevent, as far as possible, the die-metal adhering to the plate; if any should adhere, be sure to wipe it off. Place the plate upon the die, and with the horn-mallet (not too pointed) shape to the palatal surface. In order to save time, cut the anterior edge to top of ridge and mallet over the outer border; place in the counter-die and strike one blow on the die, and see if the plate is in right position. If there is any tendency to buckling of the margins, especially over the tuberosities, mallet to prevent a fold. Repeat the swaging and examination until all tendency to buckling has disappeared. Anneal the second time and finish swaging by solid blows on center of die, until slight impression of plate

is seen on center of counter-die. Then solder the lap in front, cutting none out, by placing the solder upon the *inside*, having forced some borax between, and applying the heat upon the outside, so as to draw the solder through. This process also strengthens the plate in its weakest point. While hot drop into the acid.

2. Is there danger of over-swaging?

Ans. Yes, if pure lead is used.

3. If one desires an "air-chamber," how should it be made?

Ans. By placing one of sheet lead or of sheet wax on the plaster model.

4. Is the so-called Cleveland chamber of any advantage?

Ans. None whatever; on the other hand, there are very serious objections to them.

5. Is it necessary or of any avail to boil the plate in sulphuric acid to remove die-metal from its surface?

Ans. No. If the plate is bright, any traces can be seen and wiped off. The acid will not remove it; as evidence of this a lead acid dish may be used for many years for boiling sulphuric acid, and the acid has apparently no effect upon it.

6. How should a full plate be shaped upon its outer margin?

Ans. Should *always* be made highest over the cuspids, and the gum be made fullest over them, so as to restore the contour of the lip.

7. What should be the test of an accurate fit?

Ans. Perfect adaptation to the model, with no tilting, provided Babbitt metal dies are used.

MIGRATION OF A CUSPID TOOTH.

BY DR. W. H. SPAULDING, BEDFORD, O.

A CASE was recently brought to my notice that illustrates Nature's powers of elimination. The history, all that could be obtained, was as follows: A lady, aged 56 years, had worn a full upper set of teeth, with comfort, for twenty years, when one day there began a dull pain and ache in the region of the right superior cuspid. This pain continued for six months and was followed by a slight swelling of the gum and a discharge of pus from the outer surface of the gum, which continued for eight or nine months. The discharge then stopped and the sinus healed

but the pain increased, sharp, darting pain, extending to the face and head, which seemed almost unbearable. No relief could be obtained from ordinary means, and this condition continued for several weeks, when an opening presented itself in the roof of the mouth, and suppuration ensued. The sharp lancinating pain subsided and gave place to a modified form, that of headache, severe at times, and usually in the region of the forehead. The discharge from the roof of the mouth continued for about three years, when it ceased. Soon after, however, an opening appeared in the floor of the nasal tract and large quantities of pus discharged. This discharge continued for about two years. At this time the lady contracted a severe cold, and during its progress noticed an obstruction in the nasal passage. After considerable effort this obstruction was dislodged, and proved to be a well defined cuspid tooth, somewhat affected by decay. The discharge ceased, pain in the head disappeared, and the patient regained her former health.

For a number of years she had been treated for catarrh, as the condition affected her throat and nose most of the time.

THE BREATH.*

BY J. TAFT, M.D., D.D.S.,

IMPURE breath is liable to occur at any and all periods of life. It is found in a great variety of phases—from the slightest perceptible deviation from the normal state to that in which it is loaded with a large amount and great variety of excrementitious matter from various sources, perceived sometimes even by the sense of taste, at least so far as the patient is concerned, but more especially by the olfactories, making such an impression through this channel as to produce nausea, and, indeed, the infection of contagious diseases may be carried from one person to another by the breath. A vitiated breath as a means of conveying the seeds of diseases is not duly appreciated by the public, and perhaps not so fully as it ought to be by the majority of physicians.

We involuntarily turn away from the fetid breath of even our best friends. One may be beautiful in face and form, attractive in manner and fascinating in conversation, and possess

personal magnetism that may be well-nigh irresistible, and yet an offensive breath will neutralize or destroy the influence or power of all these qualities.

In no other relation is this subject of greater moment than that existing between the dentist and his patient.

The degree of offensiveness is modified by the acuteness of the olfactories of one or both parties, together with the conditions of the exhalations, and the course or sources of the fetid breath.

If the dentist is subjected for a considerable time to this condition of things his general health may become affected in a more or less marked degree, according to his own susceptibility, and to the degree of vitiation of the air he is compelled to inhale. There can hardly be a doubt but what many suffer very greatly from this cause; and though one may not suffer much, or apparently at all in this respect, yet a sense of discomfort and uneasiness is always experienced by the dentist in his professional work when subjected to a vitiated atmosphere, and this will necessarily interfere somewhat with the thoroughness of his operations. It is a serious question whether the dentist ought ever to subject himself to such embarrassments, at least for more than a few minutes at a time. It certainly would be for the welfare and interest of both the patient and the dentist, were the former to be put upon proper treatment before having extended operations made upon the teeth.

The offensive breath of the operator is a matter of special interest to the patient as well as to himself. The dentist has no right to make himself, or even to be a nuisance in any respect to those whom he serves, and if he has any just appreciation of the fitness of things, he will see to it that his presence in every respect is rendered as little objectionable as possible.

The patient is not likely to suffer ill-health or prolonged discomfort from the fetid breath of the dentist and, indeed, many of less acute sensibility, will be inclined by and by, to seek more acceptable service.

The dentist should be able at all times to discriminate in regard to the character of his own breath; it may sometimes be a necessity to submit to this annoyance from others, but he should see to it that he never imposes upon his patients in this way. I have known superior operators—persons of gentlemanly deportment in every other respect, whose breath was in such a condition

as to disgust all those who came within its influence; indeed, I have known some such who were compelled to abandon the practice of dentistry.

There are some instances in which this affection seems uncontrollable, but in the great majority of cases it is amenable to proper treatment, and can either be modified, masked, or wholly eradicated. It can in many instances be wholly, and by proper care, permanently, relieved. In others the change is only of a temporary character, irrespective of any treatment that may be employed.

Derangement of the stomach, alimentary tract, kidneys, liver or skin is almost certain to result in more or less marked change of the breath, from the fact that in part, at least, the waste that thus fails to be removed is thrown into the lungs, and will, in many instances, produce a markedly offensive breath. But in some instances the breath may be contaminated with excrementitious matter that possesses little or no offensive odor. The defective function of the digestive apparatus is, in nearly all cases, a source of fetid breath. Disease of the lungs of almost every variety is attended with more or less vitiation of the breath.

Of the local sources of this difficulty there are many, and of these there may be said to be two classes, the one embracing all the local disorders that may contaminate the breath after it leaves the lungs; this will embrace the various forms of diseases found in the throat, mouth and nose. Diphtheria, scarlet fever, tonsillitis, and perhaps some other affections, though affecting the entire system, possess a local manifestation that results in greatly vitiated breath.

The various catarrhal affections that are found in the nose, the throat and mouth, in all cases more or less affect the breath, ranging all the way from the very mild, almost imperceptible change to an intolerably disgusting degree. This affection should be well studied by the dentist, in order that he may be able to give his patient some, if not permanent relief, and that he may protect himself so far as he may against an intensely annoying and offensive condition.

Diseases of the gum and mucous membrane of the jaws are often the occasion of this offensive condition. This will result, sometimes, from a vitiated exudate from the mucous membrane,

or it may occur, as is frequently the case, from a discharge from the margins of the gums, and from the sockets of the teeth.

Necrosis and sloughing of the bony tissues of the sockets nearly always produce a very offensive condition.

The discharge from alveolar abscess is oftentimes so vitiated as to load the breath which passes out of the mouth with an exceedingly offensive odor.

Decayed teeth are charged, especially by various medical writers, as a very frequent cause of offensive breath. This is true not only of physicians, but to a greater extent, perhaps, of the laity. There is not, however, as much in this as is usually attributed to it. Occasionally cases are presented in which an exceedingly foul breath is wholly attributed to one small innocent cavity of decay in the grinding surface of a molar tooth. Were all other causes of offensive breath eliminated, than that which comes directly from the decay of the teeth, there would be, in the aggregate, an immense improvement.

Another fruitful source of offensive odors of the oral cavity is found in the presence of foreign substances or matter in the mouth in the shape of soft salivary calculus, accumulation of food, and a glutinated mucous deposited upon the teeth or the artificial dentures undergoing decomposition, and necessarily throwing off an effluvia that will be mixed with the breath. The saliva and mucous, mixed thus with foreign substance, and retained for an undue time in the mouth, will undergo such change as to present a very offensive condition. Now as to these extraneous causes of the affection under consideration, it is not difficult for the educated patient to determine what should be done; simply purification of the oral cavity in the most thorough manner by the entire removal of all offensive material, and after this the intelligent use of disinfectants upon the teeth, mucous membrane and dental plates, if they are in the mouth.

With a large variety of disinfectants, antiseptics, cleansing materials and methods there is no difficulty in rendering almost every such case free from the objectionable condition, for a time at least sufficient for operations.

A great many formulas have been given for the correction of offensive breath; the suggestions made for the use of these, however, in the majority of cases, are upon a false basis; with many of them it is only the substitution of one odor for another,

or the mixing of two offensive conditions, and producing a third that is, perhaps, temporarily more tolerable than either of the others.

In treatment here, however, the aim should be, as in all other medical treatment, to attain the most permanent results; that, doubtless, is the true theory of all medical and surgical practice.

Temporizing should never be employed when something better can be attained.

It is very desirable that the profession should give more attention to this subject than hitherto. In our literature very little will be found upon this subject, and in all medical literature so far as I have been able to examine, only a fugitive reference to it has been here and there made; and I may here refer those who have not investigated the subject to a little work entitled, "The Breath and the Disorders which give it a Fetid Odor," by Dr. Joseph W. Howe, the third edition of which was issued in 1885, and a paper published in the *Dental Register*, by Dr. D. C. Hawxhurst, Vol. 27, page 104.

COMPILATIONS.

THE ROTATION OF TWISTED INCISORS.

BY W. SIMS, L.D.S.I.

IN the method I demonstrate to day, platinum or other metal bands are fitted and cemented to the teeth to be moved. Previously, however, soldering an eyelet to each band on the labial aspect, in order that suitable attachment for a ligature may be obtained. (The tubing sold by jewellers as silver joint-wire may be used; silver solder must be utilized to join the two metals together.)

In the case of the two centrals requiring rotation, the following is the procedure adopted, after the bands have been carefully cemented on to the teeth. Two lengths of white silk-covered elastic are taken, of proper size, and a knot being placed at each end, each piece is separately passed through the eyelet, and wrapped round the tooth twice in the way it is required to be moved, the knot preventing the silk being drawn through the eyelet; tension is now put upon the two long ends, which are

firmly tied together over the labial surfaces of the teeth. It will be seen that the teeth, in order to relieve themselves from pressure, are obliged to rotate; and this they do, without discomfort to the patient, in a space of time very much less than when plates are worn.

On the less frequent form of irregularity, that is, where the dental angles of the teeth are turned towards the labial surface, the elastic ligatures are turned round the teeth in the opposite direction.

When the teeth are straight, an impression in modelling compound should be obtained, and the bands should then be taken off and placed in their correct positions in the impression; the model may now be made in plaster, and the two bands being soldered together in the position they occupy on the model, must be recemented on the natural teeth, and remain there till the teeth are firmly set in their new position.

In cases where one tooth only requires to be rotated, the same principle is applied, but in these cases one of the bicuspid or molars of each side must be banded, in order that attachment may be made and equal pressure maintained. In some cases ligatures may be attached to these teeth without banding.

The bands recommended for attachment to the bicuspid and molars are the matrices known as Levett's matrices. These are so thin as to go between any teeth. They should be carefully fitted to the teeth, and then taken off and strongly soldered with tin. It is unnecessary to solder any loop on them, as a hole may be punched through the free end of the band, which serves admirably for the attachment of a rubber, or other ligature. In the case of rotating one tooth only, a double ligature of silk-covered elastic is brought round the tooth once or twice in the direction it is required to move, and the ends being brought to the labial surface, one end is tied to the banded tooth on the right side, and the second end to the banded tooth on the left side. This, however, is on the assumption that the tooth is required to merely be rotated; if beyond that the tooth is to be drawn to the right or to the left side, then in such case the tooth to be rotated is ligatured to the tooth of one side only, viz., that on the side in the direction of which the tooth is required to travel.

The silk-covered white elastic recommended is far superior to ordinary rubber, both for the above and other similar pur-

poses; in the first place it very rarely breaks, and secondly, it may easily be tied, and the knot never slips.

The size found most useful is about the thickness of pivot wire, and this may always be drawn through the eyelet by a loop formed of two strands of ordinary waxed silk.

While the above methods are chiefly recommended as doing away with the necessity of wearing a plate, the same principle can be applied when a plate is used, and various modifications will readily suggest themselves to the dental practitioner.—*Abstract Jour. Brit. Asso.*

ALL SORTS.

Dronier (M. P.) on a Method of Removing a Coating of Nickel which does not adhere.—The article to be treated is plunged into an oxidising liquid composed of bichromate of potash, sulphuric acid and water in the proportions ordinarily used for batteries. It should then be taken out more or less quickly, according to the thickness of the deposit, washed, and if necessary, repolished.—*La Metallurgie.*

Nelson (Nels.) on The Cause of Change in Color of Teeth while Soldering.—The changing of color in soldering teeth is due to not knowing how to use the blowpipe properly. We will find that every man who is not accustomed to the use of the blowpipe puts on a fine flame blowpipe, because he is afraid. When you use the blowpipe for the full force, heat it until it flows of itself then you need not be afraid of the teeth changing color. The changing of color is because you put too much strain on a certain place.—*Extract Review.*

Downs (Dr.) on a Simple Method of Regulating Central Incisors Standing at an Angle.—Regulating is done by taking a very fine line or cord, making a loop, and drawing the ends through the loop; then placing one on each incisor with the loop at the distal surface, the ends are drawn tight and tied. The moisture tightens the cord, and causes sufficient tension to move the teeth. It of course would need changing daily. The line or cord is known as No. 0 white re-laid grass line, and is sold by Abbey & Imbrie, 18 Vesey street, New York.—*Extract Cosmos.*

Barnes (H.) on the Benefits Obtained from Dental Societies.—At our various conventions we sometimes hear it said: "I'm not satisfied with this meeting; it's the same old story;" looking, it may be,

for something new and striking, while picking up the little things and employing them in practice on our return to the office. One remarks, "What good do you get from Association meetings? So much out of pocket?" etc. I answer, more than you can conceive or appreciate. A broad view of things; renewed purpose to do one's best, and a greater ability to do. We absorb more than we know, and many things which we think original with ourselves have been "picked up" in our intercourse with others.

Cook (A. C.) on a Method of Making Cavities in Artificial Teeth.—To make a cavity in an artificial tooth, grind out as much as possible with a small corundum wheel and points, then place the tooth on a block of lead and turn a shaving of the lead with a knife on each side to steady it. Now take an old excavator and temper as hard as possible. I heat the excavator to a white heat, then grind to a flat square point. Now drill your undercuts by light tapping on your drill with hammer, turning the drill slightly at every tap (this is the principle on which most all rock drilling is done), you can get a better cavity in about the same time and with much less expense than by using a diamond drill. —*Hens.*

Wilson (G. H.) on a New Drip Tray.—Take a suitable piece of sheet zinc, make a small tray $6\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches wide and $\frac{1}{2}$ inch deep. When constructing, cut slanting into the corners of the zinc so that when the ends are bent up and soldered they will lean forward at about 20° . Now solder another piece of zinc across the tray about $\frac{3}{16}$ inch in front of and parallel to the posterior end. Take a piece of glass 7 inches long and of proper width to fit into the space between the double end, place in position and the tray is complete. The glass stands at an angle of 20° forward, so that when the tray is placed under the lathe-wheels, brushes, etc., the glass catches all of the drip, and yet does not shut off the light. The tray, being of zinc, does not rust out.

Perry (E. A.) on Partial Dentures.—In partial plates of gold, I have been very much bothered in years past about the teeth breaking off. To correct this I make the teeth, as I would make a dummy in a bridge case. I select porcelain facing the same as I use in bridge work, then I select an artificial tooth, for making solid gold cusps. You will find the cusps of natural teeth are so pronounced that they are not practical to use; but take an artificial tooth and produce a solid gold cusp, back up your facing and grind it to place on the model, and then set it against your gold cusp. Invest it and fill the space behind as you would a dummy, grind again up to your plate and solder; your metal will never break, and it will be a beautiful case. There is no danger of the porcelain breaking off.—*Extract Review.*

Freeman (I. A.) on Materials for Lower Partial Dentures.—

Lower partial dentures for consideration? It seems to me that one particular class of dentures, that of the lower partial dentures, where the bicusps and molars have been removed and considerable absorption has taken place, it requires a very different material than it does in those of less advanced absorption where the teeth are scattered. I believe we should combine in such plates gold and rubber, the rubber to restore the lost portion, and the gold to give strength and to occupy less space in certain parts. We have as a profession, dodged this question. I have not seen in my practice many people coming from different parts of the country and coming to me, particularly of late, wearing partial lower plates, yet I have in my own practice several of them that are serving a very good purpose. I believe they should be used where bridge-work cannot be attached.—*Extract Review.*

How to Keep Polished Steel from Rusting.—Surgical instrument makers, needle manufacturers and others frequently complain of the annoyance and loss caused by the rusting of polished steel. A device for the prevention of rust, based on the well-known affinity of calcium chloride for moisture, has recently come to our notice. This consists in placing a few lumps of calcium chloride in a small glass funnel resting in a narrow-necked bottle. This is placed in the case or closet containing the articles to be preserved, and will speedily absorb every trace of moisture; polished steel instruments exposed for months in a case (not necessarily air-tight) were found at the end of that time quite free from rust-specks. The arrangement of bottle and funnel permits the liquified portion of the calcium chloride to trickle from the funnel into the bottle, drop by drop, leaving the salt exposed so that it continues active until it is entirely dissolved.

Fernandez (E. M. S.) on the Care which a Mouth Should receive when Wearing an Artificial Denture.—A plate should be removed and carefully cleaned at times, especially after meals, and should never be worn during sleeping hours. Great damage is done to the teeth and mucous membrane of the mouth by wearing a plate during sleep, and neglecting its cleanliness; thereby allowing particles of food to ferment and decompose beneath, causing *disease and decay.*

A plate should be cleaned with some antiseptic or disinfectant preparation, by the dentist several times a year.

The mouth that wears bridge-work or crowns should be carefully cleaned after meals and just before retiring. The patient should be directed to use a good tooth powder in combination with some antiseptic and deodorant mouth-wash, and rinse the mouth thoroughly with water quite warm.

If patients do not follow these directions they are at fault, we have done our duty.—*Extract Review.*

Peirce (C. N.) on a New Mode of Using Nitrate of Silver.—

I have been trying lately numerous experiments to have a form of this caustic which could be applied to children's teeth without the direct application of the crystal, which is always attended with some danger, and liable to stain the fingers, napkins and instruments.

I have saturated a piece of blotting pad with a 40% solution of silver nitrate, and this preparation seems to work very happily, and is of abundant strength for all purposes required in the mouth, whether for cauterizing the soft tissues or acting on the hard. It is well known that nitrate of silver is very soluble, dissolving in its own weight of water. This strong solution I tried first on some short fibre of cotton, but found, when dried, that the cotton was entirely destroyed. This strength—forty per cent.—is about as strong as it can be used without some destruction of the fabric. The pad, thus prepared, can be cut into small pieces, and be always ready for use, if it be kept dry.—*Extract International.*

Diffuse Cellulitis of the Neck Due to Carious Teeth.—An

interesting case of diffuse cellulitis of the neck, apparently of dental origin, recently occurred at St. Mary's hospital. The patient, when examined, was found to have two or three carious teeth in the lower jaw, one of which especially had given him trouble for about a month, the cheek being swollen on the same side. Four days before he was admitted he had been seen by a doctor and advised to "come in" that same day, as his neck was then much swollen and he had difficulty in swallowing, and his voice was husky. On the day of going into hospital he could only speak in a whisper, had been unable to swallow any solid food for about four days, was very weak, and had difficulty in breathing. His neck was greatly swollen all round, especially on the right side, where the carious tooth was. His temperature was 101.8. He complained of considerable pain, and could scarcely open his mouth at all. Ether was administered, during which he expired. The *post-mortem* showed that there were signs of old chronic periostitis at the root of one of the lower molars on right side, and an abscess containing about $\frac{3}{4}$ i. of pus extending down from the jaw into the cellular tissue of the neck. There was a deep seated cellulitis involving the cellular tissue right down to the trachea.—*Jour. Brit. D. Assn.*

Tuck (W. R.) on Thorough Examination and Preparation of the Individual Before Using Anæsthetics.—It occurred to me many

years since, that as heat influences chemical affinity, it certainly exercised powerful ascendance over all medicinal agents brought in contact with corporal structures. Holding this view, I commenced the use of the

Clinical Thermometer, and for a considerable time past, I have not undertaken to mitigate physical sensibility any way without first ascertaining the temperature. If normal, well and good; if one or two degrees above that, I consider it unimportant, if however, much below, I administer stimulants, such as brandy, whisky, or comp. spirits of ammonia, to raise the mercury to $98\frac{1}{2}$ F.

This precaution, other circumstances being considered, such as all the senses being kept in abeyance, I found produced favorable results; indeed, I do not think unfavorable consequences could follow. I may add, that when a patient exhibits much excitability or trepidation, I find a good method to quiet the system is, to give 20 or 30 grs. of potassium bromide half an hour before commencing the operation; in this case, one half of the element used, to produce anaesthesia, is usually found sufficient, less time is also taken to induce the desired end.—*British Journal*.

Brothers (A.) on Dentition as a Factor in the Causation of Diseases in Children. Effect of Dentition on Disease.—Having kept carefully compiled records of about five hundred teething infants in private and dispensary practice, he believes that dentition is rarely, if ever, the direct cause of disease; moreover, precocious or retarded dentition may occur in otherwise healthy children of an entire family, but the period of protrusion of the first teeth occurs in healthy breast-fed children at six months and a half in a vast majority of the cases. Further, he concludes as follows: The first dentition is usually complete from the thirteenth to the thirty-sixth month; dentition is distinctly retarded in the first as well as in the late teeth of children brought up on a mixed or artificial diet; congenital diseases, as syphilis, seems to have a retarding influence on the whole course of dentition. Rickets has a very pronounced retarding influence on the whole course of dentition. Struma seems to hasten the eruption of the first teeth, but does not affect the later teeth. In cases of undeveloped brain there is marked retardation during the entire period of dentition. Chronic diseases have a retarding effect upon the first teeth, but do not seem to influence the later teeth. Children suffering from marasmus seem to be precocious with the first teeth, tardy with the later teeth; while infants in whom epilepsy develops seem to have their first teeth early.—*Extract Arch. of Pediatrics*.

Younger (W. J.) on Implantation of Teeth.—I am happy to state that this operation has entered upon its eighth year of life, with nearly three-quarters of the teeth implanted and of record in the first year and a half of the operation still in serviceable condition.

Some months ago a gentleman who is a wine-taster by profession, and who for many years has been engaged in the selection and blending

of wines, came to me to have his upper jaw filled with implanted teeth. His upper teeth had all, with the exception of the left cuspid, been lost through the ravages of pyorrhœa alveolaris, and this solitary remnant of a lost tribe was itself very shaky in its diminished socket. He had been wearing a vulcanite set for several years, and as he was unable to taste with sufficient accuracy with the plate in his mouth, he had to remove it every time he plied his profession. This subjected him to considerable mortification, and beside he was conscious that his senses of taste and odor were not as delicate as before he had to resort to the artificial dentures. He therefore came to me to have natural teeth once more growing in his mouth, and be thus enabled to cast away his plate. I have so far planted four teeth, the incisors, and will soon continue the process of restoration until a set, ending with the first molar, will be completed. Since these teeth have been planted and the plate discarded, he says his old taste and sense of smell have returned.—*Extract Cosmos.*

Case (C. S.) on the Use of Plates in Regulating.—While I have always been opposed to the use of plates for regulating teeth, I do know that there are many instances where they are quite useful, and I use them where it is desirable to expand the arch by bending bodily outward the whole alveolar ridge containing the teeth. I believe much greater use can be obtained in that way by the Coffin regulating plate which has the influence to bend upward the entire alveolar arch. If a spring is used upon the teeth alone there is another influence at work, instead of bending out the arch, the tooth itself is pressed on one side of the socket. Where pressure comes absorption takes place in the socket itself, and a change goes on that way by retrograde metamorphosis of tissue, and a filling in on the other side; whereas, with the Coffin plate the entire ridge containing the teeth is gradually forced outward and the arch enlarged. I have a patient wearing two regulating plates at present, an upper and lower. The jaw strikes at one side, giving great deformity of the face, induced by the occlusion of the teeth, and it becomes necessary to change the upper teeth on both sides towards the right, while the lower ones on both sides require to be changed to the left, leaving no opportunity for anchorage other than can be obtained by plates. While I believe there are occasions when it is desirable to use plates, they are certainly used altogether too much in the profession, and I hope the time is not far distant when they will almost entirely be thrown aside for correcting irregularities of the teeth.—*Extract Review.*

Coon (W. W.) on Copper Amalgam Plus Standard Alloy.—These fillings harden very promptly, and present an enduring surface, which allows the underlying copper amalgam to fulfill its extreme use-

fulness in maintaining the most perfect adaptation to cavity walls of any known amalgam. The method is simple. The cavity is prepared as for copper amalgam alone. Copper amalgam is prepared for use in the usual way, care being taken to have no excess of mercury. The cavity is filled with copper amalgam, to completion if you please, then a shallow portion of its entire surface is removed, wiped away with a pellet of cotton, spunk, or other means, and sufficient Standard Alloy (Eckfeldt & DuBois's) is amalgamated and added to the filling to complete it. This becomes perfectly united with the copper amalgam, and will not separate. The manipulation of Standard Alloy differs from that of copper amalgam. With the latter, ball burnishers are used with a rotary motion; with Standard Alloy, flat-end instruments are used with a tapping motion, which secures the coating of alloy in place.

This alloy is very fine-grained, and the finished plug presents a surface that is capable of a high polish. If no pieces of copper amalgam have been allowed to get mixed with the amalgamated alloy that is added to the copper, it keeps a good color.

This puts to its fullest usefulness a material which is almost universally conceded to be at once the best and most unreliable preserver for posterior cavities indicating the use of an amalgam. Best, because of its steadfast adaptation; most unreliable, because of its surface-disintegrating possibilities when used alone.—*Cosmos*.

Younger (W. J.) on An Operation to Prevent Facial Deformity that attends a Fistulous Opening, through the Cheek, from an Alveolar Abscess.—The tooth was a left inferior molar. As a preliminary operation the abscess was tapped through the roots by widening the canals, and the abscess thoroughly cleansed, first by injections of warm water, and then by a 2-1000 solution of bichlorid of mercury. These liquids were then forced in the same rotation through the fistula in the cheek, from inside out, after which the whole of the diseased surfaces were treated to an injection of Churchill's solution of iodine. This was repeated three times, in as many different days, by which time active suppuration had ceased and the surface of the fistula in the cheek presented a healthy granulated appearance. An incision was then made between the cheek and the jaw, cutting down not only through the fistula, but an eighth of an inch beyond, in front and below the margin of the indurated ring that is so characteristic of this lesion. A little necrosed surface of bone was discovered, which was promptly scraped away. After thoroughly washing the wound with a warmed 1-1000 solution of the sublimate, a slightly wedge-shaped layer of cotton—in appearance like the side or flap of a saddle—saturated with wax was introduced between the cut surfaces and retained to the teeth by ligatures. Thus these sur-

faces were kept apart and forced to heal, each one independently of the other, and the cheek allowed to resume the rounded appearance it had before the disease had perforated it. You may ask why the roots of the tooth were not extracted. The answer is, Because their retention was necessary to prevent a serious gap in the jaw, which could not have failed to produce a depression in the external cheek. Besides, the roots treated and cured, and the surrounding diseased structures restored to health, an important, good, and serviceable tooth would be restored to usefulness. —*Extract Cosmos.*

Robertson (W. A.) on Gold Attachments in Cases of Close Bite.—Having obtained a correct impression and bite, we select a plate tooth to correspond with the natural ones remaining, and grind it to fit closely to the gum. When this has been done, attach the tooth by a little wax to hold it in position, and varnish and oil the labial portion of the cast around the tooth and run a little soft plaster over it, sufficiently to just cover the cutting edge. When hard remove the wax and investment, and back up the tooth in the ordinary way. We have found the use of a little fine card-board very convenient in shaping the backing. Press the pins through it and trim with a pair of scissors to the size the backing is to be, and by using this as a pattern, it is easy to cut the backing and punch the holes. When this is done, place the tooth back in the investment, and set back on the cast to see that the backing does not interfere with its going to place. If it is all right, cut a strip of gold plate (No. 30 is strong enough) about the same width for single for single teeth as the backing, and about one-half inch in length. Punch a few holes in this and bind to conform approximately to the roof of the mouth on the cast; lay it in place and close the bite to be sure it is right. Fasten to the backing with a little sticky wax, and remove from cast and invest in plaster and sand, equal parts, and solder. If the work has been carefully done, the soldered piece will go right to place, and the waxing up may be proceeded with. It is well to finish up the solder, etc., before waxing, as it is more troublesome to do when the plate is completed. When there are two or more teeth, we generally use the gold extension a little wider than for single teeth, attaching it midway between the two. This will be strong enough, and saves time. In packing the rubber, draw out a small piece and then work it carefully under the gold extension, so as to insure its perfect imbedding in the rubber. —*Dominion Journal.*

Miller (W. D.) on the Value of Iodoform in the Treatment of Diseased Conditions of the Teeth.—After many experiments with cultures from putrid pulps mixed with iodoform, etc., Dr. Miller

concludes that iodoform is not to be recommended for putrid conditions of the root-canal, as its antiseptic action in this case amounts to about nothing, and we have a large number of much more serviceable remedies at our command.

2. As root-filling, also, iodoform has no advantage over any one other indifferent insoluble powder; on the contrary, it has the great disadvantage of its disagreeable odor. Only in the case where a large open apical foramen is present, it may be advisable to incorporate a little finely pulverized iodoform into the cement with which such canals should be filled, on account of its beneficial action upon the tissue about the end of the root.

3. In the treatment of exposed pulps, iodoform can only be expected to exert an influence if it can be applied to a comparatively large surface. Where, on the contrary, the pulp is only exposed at one point or in a very slight degree, and particularly where the opening is filled up with *debris* and pus, it will be next to useless to apply iodoform. ¶

4. The application of iodoform in the treatment of periostitis abscesses, and fistule, also seems to me to be of little purpose. The remedy exerts its influence but slowly, even under the most favorable conditions, and must be applied in comparatively large quantities. It therefore seems very improbable that it should be able to act through the apical foramen in a measure sufficient to produce a beneficial effect on a periostitis or an abscess.

If abscesses and the like have been observed to disappear after treatment with iodoform, the result is principally due to the mechanical cleansing of the root canal (*i. e.*, removal of the cause) which preceded the use of the remedy. It may also be partly due to the action of various other ingredients of the paste, but certainly least of all due to the iodoform itself.

In large wounds in the oral cavity, where the use of an antiseptic is indicated, iodoform takes a prominent position on account of its comparatively non-poisonous nature.—*Extract Cosmos.*

Underwood (C. J.) on Employment of the Post in Anchoring Fillings.—We find a large anterior proximal cavity in a devitalized central incisor, involving one-fourth the cutting edge.

After filling the root and cutting away frail margins we find the cone of the tooth gone, and a thin plate of enamel in front, giving little promise for safe support of a large filling reaching, as it will, to the cutting edge. A post is indicated; not a screw or How post, but a triangular platinum wire post, always cemented in. And to obviate the annoyance and often disastrous consequences of the post being in the way, I bend it in such a way as to carry it well back into the cavity,

down through the center of the tooth to a point near the cutting edge, where it curves outward to a point near the corner to be restored. The post is shaped before setting to an abrupt point, at the end toward the cutting edge, this being accomplished by flattening the wire at the end and then cutting off the corner at an angle of 44° to 60° .

The post is thus out of the way in the body of the filling, yet retaining its full size and strength to near the cutting edge, and here the taper is so short that the maximum amount of strength is secured, with the minimum amount of post. I then cut the usual groove at the base of the cavity, to prevent slipping of the filling; and a longitudinal groove to receive a part of the lateral strain.

Case 2 is the same sort of a cavity in a "live" tooth.

There being no circumference to the cavity, but only a base, resort is had to the post—or pin, or lug, if you please.

I take a very small bur and drill a hole nearly through the tooth toward the distal side, and at right angles with the long axis of the root, at a safe distance from the nerve and from the cutting edge. Then I enlarge with a slightly larger bur till it is as large as the thickness of the tooth would suggest or justify and cement a properly-placed pin in place, slightly bent at the point of emergence from the tooth, toward the corner to be restored, thereby affording a better grip for the gold, and also being more out of the way while building base of filling. A groove is also cut in base of this cavity, as in case 1.—*Extract Review.*

Noel (L. G.) on a Quick and Accurate Method of Adjusting a Cap that is to be used as an Abutment for a Bridge.—For clearness we will suppose that you have a case where a patient has lost the second bicuspid, first molar, and second molar. Here you have the first bicuspid and wisdom tooth for abutments. We will suppose that both of these teeth have good antagonists. With suitable corundum discs and stones we cut off the bulging parts of these teeth until they are reduced to nearly straight lines.

We do not cut the grinding or antagonizing surfaces, for reasons that we shall presently show.

Measuring from grinding surface to gum line at deepest points, we cut strips of crown gold plate wide enough to make a band in the usual way; perhaps allowing extra width so that we may drive on, and, after adjusting with files and stones to the gum line, we may have enough to strike off with a stump corundum wheel to a level with the masticating surface.

Having fitted a band, we are ready to get a correct adaptation of gold to the masticating surface, so that our cap may be so closed as to protect the cement from washing out. We take a small piece of pure

gold plate—same thickness as that used for the band—and first annealing, to soften, we burnish it into the sulci, as perfectly as we can, bending down over our band and marking, so that we can put the two together accurately after removing from the tooth.

We now remove and catch the cap to the band with some little bits of solder, *placed upon the outside*. In doing this it is not necessary to try to close all the openings. We then replace it upon the tooth and have the patient bite it to an accurate adjustment.

We now remove it and blow a quantity of solder clippings—18 karat preferred—into the cusps upon the inside of the crown, filling it over level to a thickness to withstand wear in mastication. When returned to the tooth the crown will be too long. This is corrected by grinding away enough of the masticating surface to let the border of the band under the free edge of the gum, as originally fitted.

When both crowns have been finished in this way, we are ready to take the impression and complete the bridge as usual.

It gives a perfect adjustment in less time than any method I have seen.

Pure gold plate may be used for the bands also, or we may use the platinum-faced gold plate.—*Dental Headlight*.

Miller (W. D.) on Methods of Cleansing the Hands and Sterilization of Instruments.—Before beginning my work in the morning I cleanse my nails, which are not allowed to become over a mm. long, with a pen-knife, and then brush the hands, giving, of course, particular attention to the nails, for two minutes with a rather stiff brush, in a warm one to two per cent. solution of lysol. Lysol is quite equal, if not slightly superior, to carbolic acid as an antiseptic, and is far less escharotic. It makes a soapy solution, and cleanses the hands beautifully even without soap, though I usually add soap as a matter of habit, as well as to make the cleansing doubly sure. The hands are then rinsed in hydrant water and thoroughly dried. The whole operation requires about four minutes. The hands are perfectly clean, but of course not absolutely free from germs. If the fingers are rough or cracked, or the nails long, double the time will be requisite to accomplish the same end. A slight odor of lysol clings to the fingers, but I have not found it disagreeable to the patients; on the contrary, they are glad to be reminded of the fact that the dentist takes proper care of his hands.

Between operations or consultations I wash the hands in soap-water, brushing the nails and fingers from half a minute to a minute.

If, however, I have performed an operation upon a filthy mouth, I return to the lysol solution, even increasing its strength according to indications to two and one-half, three, and even four per cent.

I have found that a four to five per cent. solution of carbolic acid, lysol, or trichlorphenol suffices to completely sterilize mechanically clean instruments in thirty minutes.

I keep two complete sets of instruments constantly in use, and as soon as I have finished operating for one patient, the whole set of instruments used is removed from the operating table and placed in the antiseptic solution, where it is allowed to remain while the other set is in use, or at least half an hour.

Since about four weeks I have substituted lysol for carbolic acid. All instruments, including corundum discs, files and clamps, are subjected to this treatment, whereas, those instruments which do not come into contact with the mucous membrane, or do not become soiled in the mouth (gold-pluggers, etc.) are only occasionally sterilized.

Mouth-mirrors require extra care, and must be carefully brushed before treating with the lysol solution, in order to remove small particles of infectious matter which may have inserted themselves between the glass and the fastening. I keep so many mirrors on hand that I do not require to use any one twice on the same day. There is consequently no time lost between patients in cleansing mirrors.

In order to be able to place before every patient a glass which at least does not carry any germs from the mouth of a previous patient, I have provided as many glasses as I have patients in a day. These are all placed in a three per cent. solution of lysol in the evening, and remain there for over twelve hours. They are then thoroughly rinsed in hydrant water.—*Cosmos*.

Carr - Wm. on Treatment of Fracture of the Maxillæ.—There is but little difficulty in establishing the correct diagnosis of fracture of the Maxillæ, as the following symptoms are usually present: Severe pains in the effort to open or close the mouth, swelling, crepitus, inflammation, inability to masticate, and marked irregularity of the teeth, with more or less displacement.

Although there may be considerable displacement in fractures of the superior maxilla, yet, if properly treated, serious complications seldom arise, owing to the great vascularity of the parts.

The treatment is identical with that for other fractures—namely, to bring the parts into apposition and retain them firmly until ossification is complete. When the splint is properly adjusted, speedy union may be secured without deformity of the jaw or irregularity of the teeth.

In my own practice I have used the appliance known as Williams' Modified Interdental Splint, which is an improvement of the Gunning splint. The principal advantage of using this lies in the fact that the

patient is enabled to continue his usual occupation without attracting special attention to his condition, as there are no external appliances connected with it. He cannot masticate, but receives nourishment in a liquid or semi-liquid form.

Before taking an impression a careful examination of the parts should be made by passing the finger along the margin of the jaw, to ascertain whether any foreign substance or loose pieces of bone are present. No effort should be made to reduce the fracture before taking an impression, as this is practically useless, and inflicts unnecessary pain. Should there be loose or fractured teeth or diseased roots, they should be removed immediately, as their retention might possibly interfere with union. Also, all exposed pulps should be devitalized, as they might cause considerable suffering during treatment.

When the inferior maxilla only is fractured, an impression of the upper jaw should first be taken in order to secure the confidence of the patient; then take an impression of the lower jaw, using an ordinary lower impression-cup, avoiding the use of too much compound, as only an impression of the teeth is required. For this purpose use No. 2 impression compound as warm as the patient can bear it, in order to prevent unnecessary pain; also to prevent further displacement of the parts, allow the compound to remain until hard; this will insure a sharp impression.

In making models, mix sulphate of soda or salt with the plaster to give solidity, saw the cast at the point of fracture, and articulate with the cast of the upper jaw; unite them with a few drops of melted wax and immerse the cast of the lower jaw in water, keeping it immersed until thoroughly saturated. Then reunite the two parts previously sawed by filling the space with thin plaster. When this has hardened, secure both casts in an articulator. Before waxing, trim the necks of the molars and bicuspid of both casts. This trimming is necessary to secure a tightly-fitting splint, as an impression rarely takes the undercuts of teeth. Separate the casts by means of the screw at the back of the articulator, leaving a space of about four lines between the incisors. This will leave sufficient room for the patient to receive nourishment. Place a strip of ordinary sheet wax over the teeth of the lower cast, extending it to the free margin of the gum. Also wax in the same manner the teeth of the upper cast as far forward as the *canines*; next place a roll of soft wax on the grinding surface of the molars and bicuspid, and bring the articulator firmly together; remove the excess of wax and smooth; then remove from the articulator, and proceed to invest as far as in an ordinary vulcanite case, taking extra precaution to thoroughly saturate the casts with water to prevent the formation of bubbles

while flasking. After removing the wax, paint the teeth with collodion or liquid silic, and cover with tin foil; then pack, having the rubber as soft as possible. Vulcanize for two hours, at a temperature ranging from 280° to 300°, in order to secure an elastic splint. Before adjustment, deepen the depression for the molars about one line; drill a small hole on the buccal surface of the splint over the grinding surface of each molar, for the purpose of ascertaining whether, after adjustment, the teeth are in proper position; adjust the splint to the upper jaw, and gently bring the lower jaw with the fractured portion or portions into position until it has passed about two-thirds the length of the teeth. Then with a quick, firm movement bring the parts into place; this movement will, necessarily be very painful for the patient. After adjustment, pass the finger along the body of the lower jaw, to ascertain whether reduction is complete. Next apply the four-tailed or the straight bandage, which should be retained from three to five days, after which, in most cases, it may with safety be removed during the day, but it should be replaced at night until the splint is removed.

The patient should be instructed to keep the mouth thoroughly cleansed, rinsing it morning and evening, first with tepid water, afterwards with equal parts of tepid water and peroxide of hydrogen; at intervals during the day, listerine, mixed with tepid water, in the proportion of one to three, should be used for the same purpose.

In ordinary cases the splint should be retained three or four weeks, according to the age and physical condition of the patient.

Unless unforeseen complications should arise, the application of the splint, combined with thorough cleanliness, will usually be all the treatment required.—*International Journal*.

Faught (L. A.) on Causes of Failure in Dental Operations.—

In the first place I am convinced that in filling teeth we often fail of success because we are not complete masters of the situation at the time of the operation.

The cavity to be filled should be so protected from dampness that perfect dryness may be assured at each succeeding step. Moisture threatening towards the close of an operation need not actually get into the cavity to influence deleteriously the future result. The hurried and worried efforts to reach completion dry, even though successful, are in themselves almost as sure a factor to produce future failure as would have been the moisture. We should also decline to operate when the space is insufficient through which to do the work. The fact that an appointment has been made, and that we expected, or the patient expected, the operation to be accomplished at that particular time, rarely should be

reason sufficient for an attempt to render a service which we recognize as possible to be imperfect under the conditions.

I consider it essential in filling approximal cavities to invariably cut the enamel margins back sufficiently, that we may secure absolute metallic contact only between the facing fillings, or between the filling and the facing tooth, with the line of function of filling-material and tooth-tissue so exposed as to be capable of thorough cleansing. Other conditions than this are to be considered a frequent cause of failure.

Up to this date proper sterilization of all cavities to be filled seems not to have been sufficiently insisted upon. We live in an age of antiseptics and germicides, and those who ignore their efficacy deprive themselves of agents of the utmost value. Scientific experiments of prominent investigators have shown that momentary application of these agents is but little better than no use of them at all. Proper sterilization of cavities requires the agent to be sealed in the cavity an ascertained length of time. To do this effectively most cavities will require preparation at one sitting and the insertion of the filling at another.

Now, gentlemen, I am well aware that proper space, proper control of conditions of moisture, and proper sterilization entails upon the operator labor for which he should be remunerated, and upon the patient consumption of time, for which he should be willing to give remuneration; I know, too, that just here is the difficulty. The operator that conscientiously follows such high methods of scientific practice is, under the present status of dentistry, likely to find himself engaged in giving a service for which it will be difficult to obtain proper reward.

There is nothing more to be condemned than the putting on of rubber dam without prior medication around the necks of the teeth and of the adjacent gums upon which it impinges, and yet, collectively, we go on adjusting it day in and day out, smiling as we put it on, and pretending that the pain is but slight, building up in the minds of sensitive, shrinking patients a dread of us and of our methods. They are unscientific; and is it any wonder that we are not more cherished and more loved? That such are the facts of the practice of to-day is not the fault of scientific dentistry; it is the fault of its practitioners. There are means of relief that we know of, that we talk of, but we do not use.

I have long believed that one of the chief causes of failure in dental operations is the fact that the dentist sees only a cavity to be filled, and that he responds to the only demand on the part of the patient, "I want a cavity filled." The plug goes into the cavity, and this is dentistry. More proper would it be for the patient to consult the dentist for professional advice. More proper for the dentist to examine the patient before doing anything or giving that advice.

The more tedious operations at the hours of the day when both operator and patient are at their physical best, and at no other time should they be done. With female patients, knowledge of their periods should be acquired, and dental operations suspended or reduced to a minimum during their continuance. I may be repeating to you here things with which you are all conversant, but it is because I believe the failure of many dental operations is due to the non-application in practice of the scientific knowledge which we have and I desire to connect in your minds one with the other.

The nervous condition of the patient is a factor in the results of dental operations, and far more successes and less failures would be met if the dentist would adopt proper medical systematic treatment before and after operations, and peculiarly is this true during the visits of protracted lines of work. Proper sedatives or tonics should be recommended after operations. It may seem strange to you that I should say sedative or tonic, and yet it is true that you must determine in each patient which is indicated. It will not do for you to judge by the knowledge of temperaments which you may possess, or by the statement of the patients as to their nervous condition. You must in each instance scientifically determine it and the nature of it,—that is, whether the nervous anticipation stimulates or depresses the system; whether the nervous condition is anticipatory or most during the operation. For the purpose of determining these conditions, I propose the use of the clinical temperature thermometer.—*International*.

Martin (Oliver) on The Gum-Focus System of Dentistry.

—Let us take, for example, an upper denture. It is not difficult to judge, from the length of the roots of the natural teeth, the depth of hole that can be drilled opposite, or in the position of the second molars; the next two holes are in the position of the cuspids. It is necessary to be careful, and not drill so deep as to interfere with the branch of the nerves that supply the jaw when much absorption has taken place, but in any case drill a quarter of an inch. Take No. 10 gold wire, cut a coarse thread a quarter of an inch (the depth of the hole) on the wire; the pin's full length is about three-quarters of an inch. Still the length of the pins must be judged according to the nature of the case if the teeth are long or short. It must not be supposed that the drilling of small holes with a sharp drill in the alveolar is a painful operation. When the position is ascertained, the drill is passed quickly through the soft tissue, which is the most sensitive. When the pins are screwed in the jaw-bone, in nine days the bone is formed firmly around the pins. The thread on the gold pin taps the bone, no other tap is necessary; the

holes should not be drilled before you are ready to insert the pin. A small cork is placed over the first pin as soon as it is in position, and the same with each pin. This protects the pin from being twisted by the antagonizing teeth, the gums from being wounded by the pins. When a denture is to be made, the impression is taken, and the rim-plate stamped in the ordinary way before the pins are inserted. Although the impression can be taken with the pins in position. From the form of the plate, as well as that of the cast, the position of the pins is ascertained, the holes are drilled through the plate and the plate placed in position in the mouth. Then the holes are drilled in the alveolar through those in the plate, and the pins screwed in as soon as each hole is drilled; the holes in the plate are a little larger than the pins, as they are to admit tubes in which the pins are held. In a full denture of the upper jaw, as this example is made to represent, gum teeth are used. Rivet thin pieces of gold to the sections, cutting off the head of the pins; the gold backing, being thin, is turned into a loop at the plate end, allowing the backing to be long enough to do so. On the plate is also soldered thin pieces of gold; the end of the narrow strip of gold only is soldered to the plate, allowing the projecting part to be also turned into a loop. This holds the cement to the plate and teeth, which forms a strong combination. The pink rubber makes the neatest cement, as it finishes nicely, being of a better color than the red rubber, and as it is not used as the base of the plate, but as a cement, the work is very strong and clean. The tubes that are to be soldered into the holes in the plate and are to admit the jaw-pins, are turned on a wire the size of the jaw-pins. It is not necessary to solder the tube lengthwise, as the spring the tube affords will be sufficient to bind the pin. There is room back of cuspids for the tube, but with the molars you grind a groove along the interior side of the section molars, with corundum wheel, that will allow tube to pass into position. Fix four iron pins in same position in cast, and you will be enabled to adjust plate and teeth to a nicety. Next, try in the mouth and make any further adjustments needed. The plate is but a rim enclosing the alveolar ridge. The combination of the four pins hold the teeth in place without a tight fit of pins in the tubes but merely a nice adaptation. The teeth can be removed by the wearer and replaced with ease. The advantage of this system is the perfect use that can be made of artificial teeth without dislodging them, the freedom of the palate and the power of inserting teeth in any difficultly-formed mouth. Nicely adapted caps of vulcanized rubber can be made to fit over the pins and given to the patient, in connection with the teeth, and instructed to place these caps over the pins when the teeth are taken out. The advantage of placing a single tooth by this method will be apparent to

every dentist, as well as any number of teeth, or partial denture.—*Dominion Dental Journal*.

Jones (C. W.) on Collar Crowns and Preparation of Roots.

—The most frequent cause leading to failure of collar crowns may be enumerated as follows:

1. Imperfectly prepared roots.
2. Low karat gold for band.
3. Roughly finished or porous band.
4. Band impinging on peridental membrane.
5. Failure to follow gum margin evenly.
6. Faulty articulation.
7. Failure to restore anatomical contour.

If we bear in mind the anatomy of a tooth we see that the exposed portion of dentine that projects above the gum is entirely covered by a shell of enamel, which is also carried a little below the margin of the gum and is there overlapped by cementum. Now in restoring a broken down crown we cannot do better than imitate nature as closely as possible. The enamel should be entirely removed under the gum, leaving the cement uninjured and allowing our gold band to run up under the the gum and the sharp edge overlapped by the cement, as was the case with the natural enamel. In that case we would have no imitation whatever, provided our gold is twenty-three karat fine and smoothly polished.

In many cases it will be necessary to not only remove all the enamel, but also cut into the dentine, leaving a shoulder, then a band of considerable thickness can be used, twenty-six gauge or even thicker, thus giving additional strength and rendering a more perfect contour possible. In no case should the sharp edge of the band project toward or come in contact with the peridental membrane, but should fall inside of the line of cement as did the natural enamel. But the smooth surface of the band about one-eighth of an inch from the edge at the point where it leaves the gum margin can be brought to bear considerably against the gum without danger of irritation, and would be beneficial by keeping collections from finding their way up under the free margin of the gum.

In preparing roots the gum should be left in as healthy and normal condition as possible. If in reducing the root it is necessary to remove a portion of the peridental membrane the injury will be of a traumatic nature, and will, in all probability, heal by first intention, and no grave results are to be anticipated. But the laceration of the gum margin by being ground or chopped up by corundum wheels and the like is an injury of considerable seriousness, the healing of which brings about an extensive cicatrix which contracts and is absorbed on the slightest provo-

cation. Then we have the exposed band and other conditions which I have previously mentioned.

I have devised an instrument which is concavo-convex in shape, with its inner face cut after the manner of a rasp-file, and tempered to the hardest steel temper. This in its rapid rotation attacks the enamel rods on their ends and easily loosens them along their line of cleavage, the portion above the gum having been previously reduced by corundum wheels. The head is easily detached from the mandrel by unscrewing, to be replaced by another of different size or to be used on a mandrel in the right-angle hand piece. A shield is interposed between the cutting and gum, and is held by a flexible or spring arm. It closely embraces the cutting tool, and passes forward of its cutting face, but on slight pressure of the instrument against the root the shield passes back, allowing the cutting tool to trim high under the gum.

By this principle no attempt is made to remove the shoulder on all sides of the root at once, but one side is reduced at a time so that the original contour of the root can be preserved, or it may be changed to any desirable outline, at the same time leaving the delicate mucous membrane—which covers the gum and is contiguous with the peridental membrane—intact.

Having trimmed a root in this way, a collar crown or ready made crown, such as the Rynear or Evans seamless crown, can be readily adapted, leaving a smooth and unbroken line of union between root and crown, while the pain usually attending this operation is reduced to the minimum. A root may also be readily faced above the gum margin for the reception of a Logan or Ludwig crown, leaving the joint between porcelain and root above the gum margin and out of sight.—*Extract Review.*

EDITORS' SPECIALS.

NEW INVENTIONS.

WE have received from Dr. Melotte, Ithaca, N. Y., one of his Combination Bench Blocks. Those dentists who have not used one cannot imagine what a handy little device it is. The combination consists of an anvil, a rubber block and a wooden block, so arranged on a three-armed hub that they may readily be revolved, yet firmly held in position.

The anvil is made of case-hardened steel, and so arranged that it may be instantly revolved and stopped on quarters. In any of the positions it is firm and solid for use.

The rubber block being held by friction, is easily turned to any position. On this block any articles may be filed or finished without danger of scratching or marking. If a more solid block is desired the wooden block, also adjustable, may be used. It affords a more rigid surface than the rubber, and has in itself a number of special features. Aside from all these, there is a smooth bracket block that affords a good hammering surface. Altogether it is an admirable appliance that every dentist ought to have in his laboratory. It can be obtained from Dr. Melotte, or from any of the dental depots.

Another useful invention is the medicinal syringe, manufactured by Dr. J. Austin Dunn, Chicago, Ill. It has recently been improved, now having a glass barrel between the bulb and the syringe needle. In this no corrosion can take place, and one can see just the condition and amount of the medicament that is being used. The needle point is not made fast to the barrel, as formerly, but left loose so that it may be readily removed and easily cleaned. For the treatment of diseased conditions of the teeth and gums it is perfection.

A Hot and Cold Water Apparatus has recently been put on the market by The Ransom & Randolph Co., Toledo, O., which enables one to have hot and cold water in their office even though there may be no water-works system in the town. It is simple in arrangement, is readily attached to any stationary wash-stand, water can be kept at any degree of heat at a trifling cost, and is always ready for use. It is a convenience that every dentist should possess.

Believing that our readers will be interested in new and improved appliances, we shall, from time to time, give a description of the most worthy ones for their benefit.

NEW PUBLICATIONS.

ELEMENTS OF CHEMISTRY AND DENTAL MATERIA MEDICA—By J. S. Cassidy, D.D.S., M.D., Professor of Chemistry and Materia Medica in Ohio College of Dental Surgery. Cincinnati: Robert Clarke & Co., Publishers, 1893. Pp., 364. Price, cloth, \$2.50.

Dr. Cassidy is so widely known that he needs no introduc-

tion to our readers. From his many years of successful teaching one may be assured that his book is worthy of more than a passing notice. Chemistry and materia medica have been interwoven in a unique manner, and while more of the former in number of pages, perhaps, the latter is complete enough to give a good general understanding of the essential medicines used in dentistry.

Chemistry is one of the most important studies for the student and practitioner, yet one the least understood. Dr. Cassidy has divided his work into three parts: the first and second treat on inorganic chemistry and materia medica; the third on organic chemistry and materia medica.

In regard to materia medica he says: * * * Our hope is to study carefully the medicinal properties in connection with the chemical history of the various metallic salts and organic compounds, that may be deemed worthy of notice. We shall endeavor to systematize the study, by first presenting their physiological and therapeutic effects, if any, when applied *locally*; then, when taken internally, their influence on the brain and nervous system generally; on the circulation, respiration, temperature, and on the secretions; naming the principal diseased conditions in which they are indicated; and finally, their antidotes and dosage, with an occasional prescription."

This aim of the author seems to have been fully carried out and the field covered is sufficient to give one a good understanding of this important study.

On page 118 the author says: "Although it is not often incumbent on the dentist to prescribe medicines for internal administration, it is proper that he should know the general effects, dosage, incompatibles and antidotes, when so exhibited, of those drugs he uses in his practice as local agents, inasmuch as the large majority of them are active poisons. By knowing these facts he can make judicious selection and combination of material for any prescription that, in his judgment, will best suit the case in hand. He would not, for instance, order a combination of any soluble chloride with silver nitrate, or any vegetable astringent, with persalts of iron; or use, even topically, excessive quantities of *arsenic*, or tincture of aconite root, etc." Dentists should certainly understand these things and much more be careful about using any preparations the composition of which is kept secret.

many of which are on the market to-day. No dental library is complete without a work of the kind that Dr. Cassidy has furnished the profession, and we gladly recommend this book.

POETICAL NUMBER VICK'S FLORAL GUIDE, 1893, is not a mere advertising dodge, but one of the finest works of the kind ever issued, and should be owned by every person in the land who has a foot of land to cultivate, or is in any way interested in growing flowers or vegetables. Over 100 pages (8x10 inches) of the most interesting descriptions of all the leading flowers and vegetables, as well as many pages printed in colored ink, telling of the new novelties, with hundreds of engravings and directions for their successful cultivation. The 10 cents sent for the Guide can be deducted from first order. James Vick's Sons, Rochester, N. Y.

BRIEFS.

— I use tannic acid and creosote in root canals, and seldom have failures.—DR. STEVENS.

— WE believe nitrate of silver to be invaluable in the treatment of erosion of tooth structure.—M. M'FERRIN.

— AN ordinary rubber bellows, from a spray apparatus, used on the blow-pipe, is a suggestion by Dr. Van Woert.

— I believe there are cases that can be properly crowned, but to crown every root that comes along is absurd.—W. A. STEVENS.

— THE indiscriminate use of gold in teeth of temperaments that are largely nervous or lymphatic leads to failure.—M. GREENBAUM.

— RISE above simple sordid money getting; seek something higher. Think not of selfish interests; be a blessing to mankind. R. R. FREEMAN.

— THE loss of the cuspid changes the expression more than any other tooth, and great care is required in replacing that with rubber.—C. N. JOHNSON.

— FOR the arrest of hemorrhage after tooth extraction, use hot water by means of a syringe, and inject, drop by drop, into the bleeding cavity.—J. SCHEFF.

— DR. YOUNGER says that the German method of replantation of teeth (scraping off the pericementum before replanting) has been a total failure in cases in which he has tried it.

— No one should take upon himself to administer any anæsthetic unless morally and legally qualified to bear any responsibility contingent upon such undertaking.—T. E. CONSTANT.

— WHERE bridges rest on the gums they must be removed and thoroughly cleaned, and anything that cannot be kept clean by the wearer must be cleaned by the dentist himself.—DR. FERNANDEZ.

— I think that any tooth that can be filled with a fair likelihood of its remaining useful is in a much better condition than a crowned tooth. With me, any crown is a last resort.—WM. CONRAD.

— NEVER put a clamp on a tooth if you can get along without it. Why? Because below the margin there is a sensitive membrane which is so easily irritated, you can do irreparable injury.—C. D. SITHERWOOD.

— DR. ST. GEO. ELLIOTT puts medicines in glass test-tubes, in the corks of which are fitted small glass tubes which will only admit of one drop being poured out at a time, thus avoiding the taking out of the corks from the ordinary bottles.—*Cosmos*.

— IF a patient has two teeth out on one side and none on the other, you can make a good and serviceable partial denture by using a clasp, and the roof of the mouth will be free for articulation, and you have no annoyance with the rubber or metal.—E. L. KNAPP.

— IN cases of accidental exposure of the pulp in excavation of a cavity of decay apply morphia, and dilute carbolic acid, or creosote, with a dust of iodol, and then proceed to cap and insert a temporary filling which is usually attended with success in the case of young and healthy patients.—F. J. VAN DER PANT.

— Can it be expected that every bridge put into a patient's mouth should be a success, or that every man who tries to put it in should be an artist? We are all bound to make failures. Where is the man that makes a piece of artificial work and does not fail sometimes? We have failures all through life.—H. J. McKELLOPS.

— I do not think any good dentist ever works from daylight to dark as a rule; certain he could not remain good very long. After a certain time in the day, when the dentist becomes tired, any patient who applies to him for his best service never gets it, and any dentist who does not give all his patients his best service robs them.—WM. CONRAD.

— To procure an impression of the mouth when the patient is inclined to nausea and vomiting, permit the patient to inhale the fumes of spirits of camphor from a napkin or handkerchief until all sense of taste and largely of feeling is destroyed; then insert the plaster, and while that is in the mouth continue the inhalation.—*Dental Headlight*.

— I have abandoned the use of bichloride in favor of our old friend, carbolic acid. It has been shown that a 1 to 40 solution of carbolic acid is really superior in actual germicidal power for such organisms as cause inconvenience in surgery, as compared with any solution of bichloride that could be used for surgical purposes.—SIR JOS. LISTER.

— German engravers harden their tools, says the *English Mechanic*, by heating them to a white heat and then plunging them into sealing-wax, continuing the operation until the tool is cool. By this method the steel becomes almost as hard as diamond, and when touched with a little oil is excellent for engraving or for drilling into other metals.

— IN regulating make haste slowly. It should be borne in mind that teeth erupting require but a slight obstacle to deflect their course; that an excessive pressure would, without much pain, result in the loosening of the teeth, to such an extent that they might by a slight accident be easily dislodged when unsupported by adjacent teeth.—A. E. MATTESON, *Review*.

— I have long entertained the idea that it was absolutely impossible to produce a healthy condition where pus has existed for a lengthened period at the end of the root. We must change the conditions. If the root be necrosed, the dead tissue must be removed. If necrosis has not commenced, and the pulp is simply decomposed, it must be treated.—JAS. TRUMAN, *International*.

— IN regulating, if the force be too small, the results desired are not obtained, and valuable time is lost. If too great, it may result in a fracture of one of the alveolar plates, a broken blood-

vessel, or a congestion of the pulp at the apical foramen, causing its death. I consider the application of too much force in orthodontia as the most serious error to be guarded against.—F. FRENCH.

— THE proper place to begin the instruction in the care of the teeth is in the primary school, and it would not be amiss if this were occasionally a subject for selection in the Sunday-school. The experience of the writer of this leads to the opinion that seed sown here has never fallen on barren soil. Children eagerly absorb any simple facts of this character, and they are never lost.—*Extract Ed. International.*

— A disadvantage of the glass bulbs in which ethyl-chloride is generally supplied, is the difficulty of preventing the fluid from evaporating when not in use. This difficulty has been now overcome by the improved style of bulb, which is fitted with a brass screw and nut, which effectively prevents evaporation of the fluid from the bottle. Invented by London firm.—*Extract Jour. Brit. Asso.*

— THE causation of pyorrhœa alveolaris is probably the action of germs upon tissues whose vitality is lowered either by local or some constitutional disease. Thus accumulation of tartar, slight gingivitis, injuries of the gum, etc., were cited as local predisposing causes, whilst struma, gout, syphilis, rheumatism and wasting diseases act as constitutional predisposing causes, at the same time germs are present in abundance in the pockets between the gums and the teeth.—DR. ROUGHTON.

— IN the teeth of children from six to twelve years of age, where the tooth substance is not hard and there is liability of secondary decay, Dr. F. A. Knowlton prescribes *maltine*, a dessert spoonful, three times a day in milk during meals, and in addition a wash of lime-water for the teeth. This, he claims, will in time (one to two years), harden the teeth so that the temporary fillings may be removed and permanent ones inserted.

PUBLISHERS' ANNOUNCEMENT.

DR. L. P. BETHEL, who has been associated with Dr. Watt as editor of the OHIO DENTAL JOURNAL for the past six years, will assume full editorial control, and the JOURNAL will be continued as heretofore.

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No. 19. COMMITTEE ON NOMENCLATURE.

Chairman, G. V. Black, Jacksonville, Ill.; E. C. Kirk, Philadelphia, Pa.; W. O. Kulp, Davenport, Ia.; J. Edwin Line, Rochester, N. Y.; J. B. Hodgkin, Washington, D. C.; J. S. Cassidy, Covington, Ky.; C. T. Stockwell, Springfield, Mass.; A. Witzel, Essen, Germany; E. Richter, Berlin, Germany; J. V. Metnitz, Vienna, Austria; O. Rosenthal, Liege, Belgium; P. Sidney Spokes, London, England; E. Damain, Paris, France; H. J. Billeter, Zurich, Switzerland; O. Amoedo, Paris, France; A. C. Hugenschmidt, Paris, France.

No. 20. COMMITTEE TO PROMOTE THE APPOINTMENT OF DENTAL SURGEONS IN THE ARMIES AND NAVIES OF THE WORLD.

Frank Woodbury, Halifax, Nova Scotia; Thos. Gaddes, London, England; A. H. Brockway, Brooklyn, N. Y.; J. Bond Littig, New York City, N. Y.

No. 21. COMMITTEE ON CARE OF THE TEETH OF THE POOR.

Chairman, T. H. Parramore, Hampton, Va.; M. V. Johnson, Holden, Mo.; J. Allen Osmun, Newark, N. J.; C. S. Butler, Buffalo, N. Y.; Corydon Palmer, Warren, O.; Geo. E. Adams, South Orange, N. J.; H. M. Smith, Colorado Springs, Col.

No. 22. COMMITTEE ON MICROSCOPY AND BACTERIOLOGY.

G. V. Black, Jacksonville, Ill.; Richard Chauvin, Paris, France.

No. 23. COMMITTEE ON PRIZE ESSAYS.

E. P. Keech, Baltimore, Md.; Otto Arnold, Columbus, O.; C. B. Rohland, Alton, Ill.

No. 24. EDITORIAL COMMITTEE.

A. W. Harlan, Chicago, Ill.

Sub-Committee.

A. W. Harlan, Chicago, Ill.; A. O. Hunt, Iowa City, Ia.; John S. Marshall, Chicago, Ill.

TUSCARAWAS VALLEY DENTAL SOCIETY.

OFFICERS for the ensuing year are: President, L. E. Minuez, Massillon; Vice-President, G. W. Woodbourne, Urichsville; Secretary-Treasurer, F. H. Waldron, Canal Dover; Executive Committee, F. E. Battershell, F. F. Douds, O. C. Carr. Next meeting will be held at Canton, O., June 7th.

VERMONT STATE SOCIETY.

THE next meeting will be held at St. Albans, Vt., on March 15th, 16th and 17th. Members of the profession cordially invited.

MISSISSIPPI VALLEY DENTAL SOCIETY.

POSTPONEMENT.

THE President and Executive Committee of the Mississippi Valley Dental Society have, after consulting the active members of the Association, decided to postpone the meeting for this year. Owing to the many other prominent meetings following closely after the one of the M. V. D. Ass'n, the interest of the profession in this vicinity seems to have been diverted and centered on the other meetings, as was shown by the rather meagre number of papers received by the Executive Committee, and it is with the hope that by next year, with nothing to divert the attention of the members, we could, by presenting an excellent program, arouse their enthusiasm and have an old-time meeting again.

O. N. HEISE, *President*.

OUR AFTERMATH.

DR. C. P. GRAY has removed from Madisonville to Cincinnati.

NORTHERN OHIO DENTAL SOCIETY meets at Akron, May 9, 1893.

"CULTURE is the ability to do the hardest thing in the easiest manner."

THE DENTAL TRIBUNE, Chicago's new weekly, will be issued daily during the Dental Congress.

DR. H. H. JOHNSON has again become sole editor of *The Southern Dental Journal*, succeeding Dr. R. A. Holliday.

THE WORLD'S COLUMBIAN DENTAL CONGRESS, Chicago, August 14th to 19th, inclusive, instead of 17th to 27th, as heretofore announced.

THE MEDIC'S LITTLE BILL.—Convalescent (looking at his doctor's bill): "Good gracious! have I been as ill as all this, Doctor? I wonder I'm alive."—*Life*.

FOR OUR SUBSCRIBERS.—"THE OHIO DENTAL JOURNAL appears in a new, attractive dress. It is a bright and newsy monthly, ably edited."—*The Dental Tribune*.

CALLS A BANQUET A "CHEW"—There is a Beefsteak Club in New York, and it consumes two hundred pounds of beef at a "chew," as it calls its banquet.—*Post Dispatch*.

A BICYCLE TOUR IN EUROPE is the title of a serial running in the Otterbein (University) *Egis*. The author is Dr. L. E. Custer, Dayton, Ohio, and the narrative is quite spicy.

THE NEW YORK DENTAL SCHOOL for men and women is the latest. It will open in March with a Spring session. J. Howard Reed, Secretary, 87th street, 120 West, N. Y. City.

THE UNIVERSITY OF MICHIGAN Dental College has 190 matriculates. Three annual terms of nine months each, and high preliminary requirements, we understand, does not reduce the attendance, but results in a better class of students.

A PAINFUL OPERATION.—Strauber: "What's the matter, old man? You look shaky. Singlerly: "I am. I just had an interview with my dentist." Strauber: "What did he do—extract a tooth?" Singlerly: "Worse than that; he extracted twenty dollars."—*Life*.

TEETH PAVED "WHILE YOU WAIT."—Dr. Custer, of Dayton, where they are paving the streets for the first time, filled a tooth with oxyphosphate cement for a young hopeful. Parental inquiry: "What did he fill it with?" Young Hopeful: "With asphalt."

THE LIFE INSURANCE department for physicians, dentists and druggists, of the North American Mutual Benefit Association, has withdrawn from the society and is reinsuring its members in the Northwestern Life Association of Chicago, on a much better plan than the old one.

AND HE DID.—"What you want to do is to advertise for a partner. There are plenty of suckers to be caught that way. When you get him, sock it to him; skin him; take his pelt. That's the way to do business. You make money whether the other fellow does or not."—*Daily Paper*.

THE WONDERS OF NATURE.—"What dentist made your teeth for you?" "Those are my own teeth. No dentist made them," was the indignant reply. "You don't say so? How deceptive they are. They look as nice as the best kind of false teeth. What a wonderful thing nature is."—*Texas Siftings*.

NORMAN W. KINGSLEY, M.D.S., D.D.S., of New York City, has a full-page advertisement in the *Illustrated American* of January 28th. It is entitled "Dentistry—To-Day," and gives an historical sketch of Dr. K. and his specialties—the treatment of cleft palate, irregularities of the teeth, and deformities of the jaws—accompanied by an excellent half-tone portrait.

THE CODE OF ETHICS.—"Doctor," said the solicitor, "I wish you would do some advertising with our paper," "Could n't think of it, sir. The idea is preposterous. It's against the ethics of our profession. By the way, here's an item about a man I attended this morning. Take it down to the office, will you? And be sure to see that my name is mentioned."—*Buffalo Express*.

HIS FIELD.—"Yes, father," he said to old Mr. Hayseed, "I've graduated, and my education is complete. I s'pose I know about everything. Now I must choose a field where my abilities can be used to the best advantage. I want a large field, where I will have plenty of room." "Son," replied the old man, "there is the ten-acre corn field, and you kin have it all to yourself."—*Harper's Bazar*.

THE DIFFERENCE BETWEEN AN EDUCATED MAN AND A MAN OF INFORMATION.—Both possess a great store of knowledge. The educated man, however, has his knowledge organized in a systematic manner, and knows the relation

of the facts in his possession to each other. The man of information, on the other hand, is possessed of a great mass of unsystematized facts which he is always willing to communicate to you on all occasions, no matter whether they are relevant to the topic under consideration, or are related to each other. In consequence, he often proves a disagreeable bore. Man is simply a bundle of impulses, and the educated man is the one who has his impulses wholly under his control. He is always cool and self-possessed in all his faculties.—PROF. H. P. SMITH.

THE PATIENT'S VIEW OF IT.—A bright young Xenian, attending school in Cleveland, writes, for the January *University School Record*, an account of his holiday vacation experiences, and thus touches up dentistry: "Every time a boy goes home on a vacation he is expected to go to the dentist's and have his teeth examined. After much hesitation, I went. This may seem strange, but it is true—I went. After examining a large molar, the dentist, in a pleasant tone of voice, said to me: 'That's bad; that tooth has an exposed nerve.' Then he examined another molar. 'That's bad; the hole in that one runs into the next tooth.' Then he examined my upper teeth. 'Well,' he said, 'that's a good beginning; there are six of your upper teeth need filling.' Twice a day for over a week, I went up to the dentist's, and the last words he said to me were: 'When you come home for the summer vacation come up again, and I'll take out the temporary fillings and put in permanent ones.'"—C. L. D. And now the dentist, in the hope of "getting even," impatiently awaits that boy's "summer vacation."—W. H. S.

THE USE AND ABUSE OF A GOOD CREDIT.—The following excellent quotation is from the advertising pages of the *Dental Cosmos*:

"The majority of people desire to have a reputation for good credit and be able to get accommodation, if desired, upon their established record for prompt payment of accounts. A good credit is something that is worth striving for, and when attained the possessor may rightfully feel a just pride in the fact that he possesses the confidence of those with whom he deals. A good credit standing properly used is an acquisition of unlimited value, but when abused it becomes one of the worst curses that can be entailed upon an individual.

"The injudicious and extravagant use of a good credit has caused more failures and made more bankrupts in business than all other causes combined. By reason of a good credit, people become reckless in their expenditures, and when the tide turns and reverses come, they find themselves so far from shore that they are unable to stem the tide or reach the harbor. The art of judiciously using a good credit is an accomplishment. Its privileges often lead a man to purchase beyond his resources, and when the day of settlement comes around, he finds himself confronted with more obligations than he has resources to meet. It is far easier to contract a debt than it is to pay it. A man can get into debt almost unconsciously, but when pay-day comes, and he finds himself face to face with more creditors than he can satisfy, he realizes his mistake when it is too late to avoid it. And thus it is that thousands of men become hopelessly involved without any intention of wronging anyone, or of beating their creditors out of their just dues. It was because they had good credit and abused it."

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No. 4.

CONTRIBUTIONS.

CONTOUR CROWNS AND PERFECT CERVICAL ADAPTATION.

BY GRANT MITCHELL, D.D.S., CANTON, OHIO.

WHILE suggestions are being made in regard to methods of obtaining correct occlusions, with gold crowns, let me describe an easy method of securing a nearly perfect *cervical adaptation*; and at the same time restoring the natural contour of the crown, which performs an important function in preserving the gums from harm in mastication.

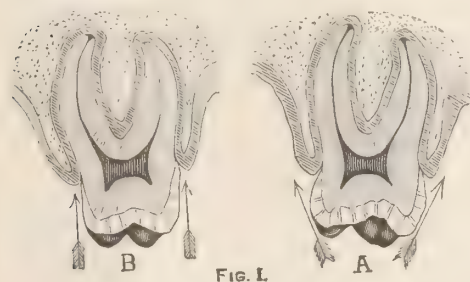


FIG. 1.

Fig. 1 illustrates the lines of force in mastication, as exhibited in (A), a crown nicely contoured, and (B), one with sides nearly parallel.

This hardly needs further comment, but in view of the importance of the

point, which seemingly is disregarded, to a great extent, in the

The editor and publishers are not responsible for the views of authors of papers published in the OHIO DENTAL JOURNAL, nor for any claims that may be made by them.

making of gold crowns, I will venture to add, that in cases where from any cause the full performance of this office is interfered with, a more or less congested and unhealthy condition of the gums will be noted.

In this connection, also, it has been argued that gold bands should not be allowed to extend beneath the gums, "particularly on the six anterior teeth," because of the irritation produced, etc.

This, so far as it is a statement of effect, is correct, but the inference as to cause is erroneous.

It is true, gold bands should not extend below the gum line (*except* on the anterior teeth, and then, only, when the natural crown is to be excised and the root stripped of its remaining enamel), for the reason that, usually, the gum extends so far below the enamel margin, that an effect illustrated by the dotted lines in Fig. 2, is the result, with its consequent unhealthy conditions.

To obviate these difficulties, then, it is necessary both to restore the proper contour of the crown, and secure the most perfect adaptation possible at the cervical margins. A simple method of meeting these ends, is to prepare the tooth as usual, with files and corundum stones, leaving the sides nearly parallel, as shown in A, Fig. 3. A pure gold band (B) No. 28 or 29 gauge, $\frac{1}{8}$ to $\frac{3}{16}$ of an inch broad, is then accurately fitted, allowing the cervical edge to simply *touch* the gum line. With this carefully placed on the tooth, a pattern is again made, and a band of coin gold (C) is fitted, outside of the pure gold band, the cervical edge reaching to within $\frac{1}{32}$ of an inch of the gum, leaving a line of pure gold project, and the crown end flaring slightly. With contouring pliers (the best form of which are the improved collar pliers), the lower, or crown, end of

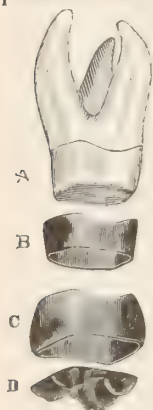


FIG. 3.

the coin band is tucked in as far as necessary to fit the appropriate crown die. Now carefully adjust the bands, one within the other, and flow the highest, admissible grade of solder between them from within. Swage solid gold cusps, (D, Fig. 3) adjust and solder.



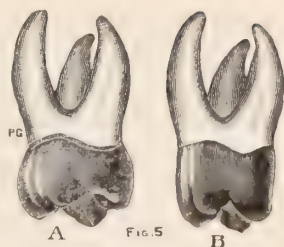
FIG. 2.



FIG. 4

Dotted lines show pure gold band inside.

You have now made a crown, shown at Figs. 4 and (A) 5, which combines the strength of coin with the softness and adaptability of pure gold. Figs. 1 and 5 furnish comparative studies from both the hygienic and artistic points of view, B, B, being imperfectly formed crowns.



USEFUL HINTS.

BY WM. H. STEELE, D.D.S., FOREST CITY, IOWA.

Watt's Metal Cusps for Short Bites.—I saw recently in *The Items* an article by Dr. Ticknor on this point, and will give my method of making them: Cut out a piece of thick base-plate wax, as large as will go in a Watt's flask; warm a piece of thick glass and lay the warm wax plate on it; press into it plain single bicuspsids and molars of the sizes and shapes desired, as close together as practicable all over the wax. Now with a warmed spatula make a little channel from crown to crown, for gates; place bottom half of the flask on the glass; slightly oil the wax, and fill the flask with Teague's impression compound. When set remove the wax; varnish and oil the surface; put on the other half of the flask and fill with the compound. Separate when set, and with a sharp, straight-edged plaster knife remove all the projecting cusps and channels from the *first half* of the flask; close and clamp; dry out all moisture, and pour with Watt's metal. Old tooth-pins can be put in by setting them in the plaster, opposite the crowns desired, before pouring the metal; or, the crowns can be roughened with a graver for attaching to rubber plate. As many as desired can be made from one mold.

A New Matrice.—I consider the matrice one among our greatest time, labor, and patience (patient's) savers, and do not think any one who has become accustomed to using them would like to do without their aid; yet many of those now in use are not what they should be. A matrice that presents a flat, unyielding surface to the tooth is useless, as is also a band matrice that encircles the tooth and only has two or three points of contact. A matrice to be a success should hug firmly *all walls* of the cavity to be operated

on; and should yield enough to allow of giving the tooth its natural contour, without being displaced. For years I have used thin german silver, such as is used by stencil cutters for making linen markers. Take a piece of the metal, double it, and cut in shape shown in cut A.

Take a strip of rubber dam, and fold as many thicknesses as will pass

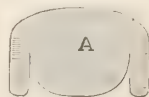
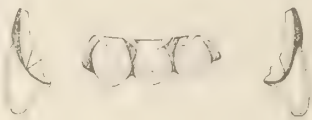


FIG. 1.

tightly between the teeth; open the two plates of the metal and put the strip of dam between, as shown in B, and bring a single thickness under the lip, C. To adjust the matrice, take hold of each end of the rubber and stretch it, at the same time carefully force the matrice down between the desired teeth, until the lower edge of the metal is below the bottom of the cavity; when through with the filling, cut off the lingual part of dam close to the metal; grasp the other end of the rubber with one hand, hold the matrice in place, stretching the rubber, carefully withdraw it; it can be removed without displacing the metal; and with a little care this can be done without injury to the softest amalgam filling.

Replacing Pinless Gum Sections.—We frequently have a plate brought in, with a front block broken off; the section being all perfect, but minus part of the pins, or perhaps all of them. I have found the following method very useful and a success in such cases; Put a rubber corundum disc, style D, in the engine, and cut channels in the old block, as shown in the cuts; keep the disc well wet; and be governed in depth of the channels somewhat by the shape, and amount of material in the tooth, or section. Now cut away on the plate for the new rubber, deep enough so that it will easily reach, and flow into the channels; replace block on the plate, wax up, flask, pack, and vulcanize as usual.



MECHANICAL ABRASION OF THE TEETH.*

BY JUNIUS E. CRAVENS, D.D.S., INDIANAPOLIS.

AFTER completion the crowns of teeth are subject to such modifications only as are destructive to contour. Aside from decay, these modifications are usually known as abrasions, and are classed as mechanical—so called. This paper is devoted to a study of mechanical abrasion, because it is observable on every set of adult teeth that are in occlusion. Mechanical abrasion should not be confounded with conditions arising from blows, violence of sudden occlusion, as in snapping the teeth, or any of those accidental coincidences that crack and break away fragments of tooth crowns. All modifications that should be classed as simple abrasions are accomplished by a gradual wearing away of the hard tissues of the crown, whether classed as mechanical or chemical abrasion. Usually, mechanical abrasion is confined to those parts of the crown that are or have been in occlusion with teeth of the opposite maxillary. Mechanical abrasion is essentially progressive, and presents three well marked stages for consideration, each having characteristics that are well worth the attention of the practitioner.

PRIMARY ABRASION.

The primary stage is confined to the enamel, which is worn off in small, flat and highly polished surfaces; consequently, in this stage the abraded tracts are colorless and without sensibility.

Careful observation of cases as they occur in daily practice has led the writer to a recognition of the following propositions:

First.—The primary stage of mechanical abrasion in the accomplishment of complete occlusion.

Second.—Either condition is impossible without the other—therefore—

Third.—The primary stage of mechanical abrasion is not detrimental to the use or tenure of teeth;—to the contrary—

Fourth.—It is essential to a proper and most effective exercise of the teeth in mastication.

It is much to be regretted that the process of mechanical

* Abstract of Paper read before the Ohio State Dental Society, Columbus, Dec. 1892.

wear of the teeth does not cease with the establishment of the primary stage.

When a tooth is erupted, it is then perfect—if ever perfect in contour; and to be perfect in contour means to present certain angles and curves that render impossible that adjustment that must be mutual between teeth,—that we style complete articulation—without some abrasion of the occluding surfaces. The practical impossibility of frequent, forcible contact of equally hard substances, without some abrasion of both, must always be considered in mechanical adjustments that are designed to be persistent. Dentists who fail to recognize and provide against possible destructive force of occlusion,—primarily, emphasized by inevitable mechanical abrasion,—secondarily, are certain to experience a liberal per cent. of failures in their operations.

SECONDARY ABRASION.

The secondary stage is produced by a continuation of the wear that begins with the first stage; but in the secondary the abraded tracts are observed to have notably broadened, and are depressed centrally so as to appear as distinct saucer-shaped faces, sometimes attaining great depth, they are usually discolored, varying from a yellow to a coffee brown. It is characteristic of animal ivory from whatever source, to become discolored by exposure to air and moisture, and general surface contamination; in abraded tracts on teeth it is observed that the deeper the discoloration the less the degree of sensibility:—however, this effect is often only superficial.

When abrasion has progressed until the cusps have been reduced to their bases, the traces of exposed dentine hang like saging canvas from the enamel that has been left standing as elevated rims around the exposures as if for protection. This elevation of rims of enamel about abraded tracts constitutes a distinguishing and important feature of advanced abrasion, and should be noted.

Unlike the primary stage, the secondary involves two of the hard tissues of the crown in the destructive progress; in no sense is it essential to complete articulation of the teeth, in fact it often destroys established articulation and continues without discernable contact, however, the secondary stage, although undeniably erratic, marks a degree of progress in a transition by which man

in decline of life comes to use his masticators much after the fashion of a goat.

Secondary abrasion is not altogether without redeeming features; it certainly admits of a more liberal lateral action of the jaw, facilitates prehension and accommodates retraction in occlusion. Further, as this stage does not obtain until the individual is nearly or quite fifty years old, it is largely instrumental—by reason of the shortening of the visage—in giving to the features that expression of manhood or womanhood that so often is an index to the character, and that fixes itself indelibly upon us for good or evil, until the softening snows of the winter of life come to take away the settled look of business and care; and then the man is old.

TERTIARY ABRASION.

In the third stage of mechanical abrasion we discover the extremely worn-out condition of the teeth, so characteristic of old age, or at least beyond middle life. In many instances that which usually should be an articular surface has been reduced to a single deep depression, touching, if at all, at the sides only; this is oftener observed in the cuspids and incisors. In many cases of abrasion of the molars there remains of the grinding portion, the vertical rim surrounding the abraded tract and standing up in relief, while the central portion is occupied by an irregular ridge of enamel—the remaining evidence of grinding surface fissures. Here we have a practical completion of the transition referred to in closing observations on the secondary stage, by which man in the “sere and yellow leaf” is relegated to the herbivora; let us hope he may not become quite an ass. With the angles of the jaw nearly straightened, his teeth notably shortened by abrasion, the cusps of his youth worn entirely away, and circular and transverse ridges of enamel rising like those of the horse to perform the manual of mastication. We observe the “lean and slippered pantaloon” comminuting his feed into meal with his teeth, instead of bruising and triturating it in saliva as in the days of the cusps; that which he cannot chew he eschews, so that gradually he accommodates himself to a diet in which slops, eggs and tender vegetables predominate, or dominate.

To the aged it is a blessing that they are enabled to manipulate a worn out mechanism of mastication so effectually as to

enjoy fair digestion; then we come to comprehend that although the tertiary abrasion is so disastrous to the teeth themselves, it renders perhaps reasonable compensation in enabling the sharp edges and ridges of enamel to meet the deficiencies of muscular weakness and impaired digestive power.

Again, in the third stage, it becomes a matter for regret that the progress of wear of tissue may not be stayed; but the fact of continual wear here is as merciless as in the preceding stages; the crown disappears and the subject continues to chew—or thinks he does—after a fashion, with such poor stumps as may have been spared, until at last all are gone, and the edentulous gum of infancy is almost reproduced in “second childhood.” Still the compensating kindness of Nature is asserted, and the gums become so toughened as to prove effective in bruising such articles of diet as are appropriate to such a stage of existence; an intimacy of the nose and chin is threatened, and the countenance of the individual whose “sands of life” are run so low, assumes the angelic expression of one who has realized the hollowness of life’s ambition and appetites, and fixed an expectant gaze on eternity.

The density of enamel enables it to offer a greater resistance to abrasion than dentine is able to do, otherwise the wear would be uniform and the teeth would become flat and smooth, offering no advantage as grinders. The dentist should consider well the consequences to the patient in his hands, ere he proceeds to level up the saucer-shaped depressions in the grinding aspects of molars and bicuspid of the middle-aged or aged; likewise there is here a suggestion to be applied to prosthetic practice.

AGE ESTIMATED BY ABRASION OF TEETH.

In most cases the approximate age of a subject may be estimated by the stage of abrasion of the teeth. The first stage (enamel wear) is found as early as eighteen years, and even earlier. The second stage should be well marked at fifty, and often noted by forty years. The third stage (extreme wear) is nearly always apparent at sixty years. Habit often has much to do with abrasion, and an individual’s teeth may thus be made to indicate a much greater age than the fact.

Whether a problem is presented herein, or not, depends upon the “point of view,” and some other things.

DO THE TEETH GROW (?)

BY E. H. RAFFENSPERGER, D.D.S., MARION, O.

THIS may sound rather an absurd question for a dentist to ask, but after reading the facts others may ask the same thing.

About ten years ago a lady called my attention to a peculiar yellow spot, in the enamel of one of her central incisors, superior, on the labial surface. The spot was about the size of a pin head, and situated about one-third the distance between the gum and the cutting edge of the tooth. Nothing was done and the case forgotten, at the time. A few weeks ago the lady called my attention again to the same spot and I was greatly surprised and dumbfounded to see the spot now exactly at the cutting edge of the tooth. Nor was the cutting edge in any way worn down, but as sharp as ever, hence the query at the head of this. Do the teeth grow like the finger nails? This case naturally suggests the idea. I have simply given the facts and you can draw your own conclusions. Will say, however, that the spot was "cut out" and filled, and I shall now watch the case to see whether the filling will eventually work its way over the cutting edge of the tooth and up on the lingual surface. Perhaps after all, there may be something in the "sun do move" theory.

PRESIDENT'S ADDRESS.*

BY J. R. CALLAHAN, D.D.S., CINCINNATI, OHIO.

THE Ohio State Dental Society was organized in 1866, and continued under that organization to December, 1884, when (for reasons known to most of you) it was reorganized and chartered under the laws of our State. The reorganization was complete. The constitution and by-laws were remodeled from beginning to ending. We have now been working under this reorganization for eight years, and we can now see the wisdom of the present methods of conducting our meetings. There are weak spots in our constitution and by-laws that I hope will be remedied at this meeting. I desire to call your attention to the Board of Dir-

*Abstract of paper read at Ohio State Dental Society, December, 1892

ectors. This Board is of far more importance than any office or Board in the Society. The importance of electing four best men to this Board can not be overestimated. This Board is your court; it transacts all your business. The success of our Society depends largely upon it. In the past few years they have transacted business for the Society that under the old rule would have plunged us into endless discussion and unpleasant wrangles that would have ended in profitless quarrels and enmities. The business has been done quietly and in a business-like manner. Any member can go before the Board of Directors with any rational proposition he may desire to present, and I assure you, from an official experience of eight years, that you will be received and treated with the utmost courtesy. I am of the opinion that no matter of business whatsoever should be permitted to come before the Society except on appeal. We should ever bear in mind that the best interests of the Society demand that as little time as possible should be taken from the discussion of the regular subjects. And during this meeting I shall, with your permission, refer all matters of a business character to the Board of Directors. For years this Society has been trying to get a new dental law enacted to take the place of the old law that has so long been absolutely useless. Committees have been appointed year after year, and as often as appointed have visited Columbus to confer with the standing committee from the legislature on medical colleges and societies. The bills were always lost in the committees. I have no recollection of any of our numerous amendments or new bills getting far enough along to be voted upon. This year your committee determined to make a heroic struggle, after arranging for a little financial support. The fight began under the guidance of Senator J. J. McMaken of Hamilton, Ohio, and here let me say, this Society owes to this gentleman a debt of gratitude not easily paid. I hope you will see fit to remind him in some manner that you recognize the service he rendered you, without the slightest reward to himself. As I said before, the fight began, and we had it hot and heavy for about four months, in the Senate. Early in April the bill passed the Senate with but one dissenting vote. The Committee recognized that the worst of the fight was yet to come, as the House had declared itself as opposed to any legislation of the kind, and had emphasized this declaration by totally wrecking

the Medical bill only a few days before our bill went over to them. We were repeatedly told by members of the House that it could not get through; but it did. Just about the time our bill got before the committee from the House, Dr. Emminger was driven to Hot Springs by a severe illness. and soon after Dr. Taft was compelled to be at Ann Arbor, and your humble servant was left alone to meet the unlimited hosts of the House of Representatives, and I assure you that he felt about as lonely as never before. After a deliberate survey of the situation, I decided to appeal to Dr. Grant Molyneaux for help. He consented to do whatever was asked of him, and ask no questions. He kept his word, and I wish, in justice to him, to say that it was largely through an influence he was able to bring to bear that we won the fight in the House in the third round, and our bill became a law. I wish officially, not as a member of the committee on dental law, but as president of the Ohio State Dental Society, to thank Dr. Molyneaux for his most timely help. I do this because I am the only person who knows all that was done at that time. There are many points about this law that I should like to discuss but I pass them, expecting the report of the committee to bring them out.

I desire to call your attention to an official act, which the following correspondence will explain :

FOSTORIA, OHIO, Aug. 16, 1892.

DR. J. R. CALLAHAN, *Cincinnati, Ohio* :

Dear Sir : I desire to call your attention to the fact that the Baltimore College of Dental Surgery gives the State Dental Society of each State the privilege of appointing one person as beneficiary student—see enclosed slip. May I ask you to do what you can in my behalf in regard to getting the appointment for me, etc.

Yours Resp'y, etc.,

BENEFICIARY STUDENTS.—Each State Dental Society is privileged to send one beneficiary student to this college at one-half the regular fees. This has been for some years an established feature of this college.

PROF. R. B. WINDER, *Dean*,
No. 716 Park Avenue, Baltimore, Md.

To which I replied as follows :

Dear Sir: In reply to your favor in which you make application for the appointment by the State Society to what is known as the beneficiary student to the Baltimore Dental College, I have to say that we have five dental colleges in Ohio, and I believe it to be the duty of the State Society to support in every legitimate way, the institutions within our own jurisdiction, and not fall into the advertising schemes of colleges in other States.

Yours truly,

J. R. CALLAHAN,

President Ohio State Dental Society.

I have received several such letters in years gone by, but not being in a position to act, I paid no attention to them. This year I report my action so that the society may reject or endorse it, thereby establishing a precedent for those who may follow me in an official capacity. And now, brethren, the Executive Committee have prepared for us a feast of good things. It has required labor and patience to perfect the arrangements that have been made for us. We are indebted to Dr. Emminger and his committee for what is to come.

A BILL FOR AN ACT TO REGULATE THE PRACTICE OF DENTISTRY IN WYOMING.

THIS BILL WAS APPROVED BY THE GOVERNOR AND BECAME A LAW
FEBRUARY 18, 1893.

SECTION 1. It shall be unlawful for any persons to practice dentistry or dental surgery in the State of Wyoming without first having received a diploma from a reputable Dental College or University, incorporated or established under the laws of some one of the United States, or some foreign government, which is recognized as such by the National Association of Dental Examiners: *Provided*, that nothing in Section one of this Act shall apply to any bona-fide practitioner of dentistry or dental surgery in this State at the time of the passage of this Act; and *Provided*, That nothing in this Act shall be so construed as to prevent physicians or surgeons from extracting teeth.

SEC. 2. Every person who shall hereafter engage in the practice of dentistry or dental surgery in this State shall file a copy of his or her diploma with the County Clerk of the County

in which he or she resides, which copy shall be sworn to by the party filing the same, and the Clerk shall give a certificate with the seal of the County attached thereto, to such party filing the copy of his or her diploma, and shall file or register the name of the person, the date of the filing, and the nature of the instrument, in a book to be kept by him for that purpose.

SEC. 3. Every bona-fide practitioner of dentistry or dental surgery residing in this State at the time of the passage of this Act, and desiring to continue the same shall, within sixty days after the passage of this Act, file an affidavit of said facts as to the length of time he or she has practiced in this State, with the County Clerk of the County in which he or she resides, and the said Clerk shall register the name of and give a certificate to the party filing the affidavit, in like manner and of like effect as hereinbefore provided.

SEC. 4. All certificates issued under the provisions of this Act shall be prima facie evidence of the right of the holder to practice under this Act.

SEC. 5. Every person violating the provisions of this Act shall, upon conviction thereof, be deemed guilty of a misdemeanor, and be punished by a fine of not less than fifty dollars, nor more than two hundred dollars, for each and every offense, or be imprisoned in the County jail for sixty days, or both fine and imprisonment, at the discretion of the Court, and all fines collected shall belong to and be paid into the common school funds of the County where the offense was committed.

SEC. 6. Any person who shall have filed his or her affidavit or diploma, as required in Sections two and three of this Act, in one County, and remove to another County, shall, before entering upon the practice of his or her profession in such last named county, procure a certified copy of the record of his or her former registry, and cause such transcript to be filed and recorded in the dental register of such County in which he or she has removed.

SEC. 7. This Act shall take effect and be in force from and after its passage.

In regard to the passage of the above law Dr. Gardinier of Laramie, Wyo., says: "This is our third attempt, and we consider ourselves *very* fortunate to get it passed this session. Our first attempt provided for Dental Examiners, but there

were too many afraid of the examinations, and thus killed it, after a most bitter fight. The second trial was made with but little courage and died easily, for want of support. We had gained some experience by this time, and for our last effort a *few* of us worked hard day and night, and happily secured its passage."

COMPILATIONS.

THE RESTORATION OF DEFECTIVE TEETH.

BY P. HEADRIDGE, L.D.S.D.

THE labial surface is first ground off flat with diamond disc, without approaching too near the pulp chamber. The sensitiveness of the dentine can be deadened by using the ether spray. After the face of the tooth has been cut off in a slanting direction, high enough to remove all the unsightly pitted enamel and a smooth flat surface obtained, take a plate tooth of the right shade and character. For this purpose it is generally better to select one rather larger than the natural tooth. Cut off the pins and grind the back of the mineral tooth flat and fit it in the mouth so that it restores the natural tooth to its proper shape.

If the remains of the pins are quite firm in the shell of mineral and come opposite the lateral portions of the natural tooth on either side of the pulp chamber, flow enough pure gold on each platinum pin, and file each dot of gold up into a short pin. Now drill two holes in the natural tooth for the two pins to fix into, and fix the mineral shell in its place with some white cement. When the edges have been polished down smooth with the enamel the operation is completed.

It very often happens, however, that the remains of the pins are not where one would wish them to be. In this case drill the holes into the natural tooth, and take a piece of platinum wire rather thinner than that used by the makers for the pins of their mineral teeth, and bend it into a flattened U shape, so that the two ends will fit into the holes drilled into the natural tooth. Now cut a slot in the mineral with the diamond disc, so that the

face-piece again fits close to the natural tooth with the wire in position.

The face-piece and wire are now taken out of the mouth and the wire fused into the slot in the mineral with some easily fusible mineral body.

It is often better to try the face-piece in again while the mineral is in its plastic form before fusing, as one may thus more easily get the proper adjustment.

The method of putting entirely new pins into the mineral is really less trouble in the end than adding gold pins to the remains of the platinum ones, because by this means the pins are more easily fitted into the holes in the natural tooth.

With Parker's gas furnace one can fuse in the pins in a very few minutes.

I have employed a method similar to the one just explained for restoring laterals and centrals, which have accidentally had the corner or cutting edge broken off, without injury to the pulp.

In such cases I grind the cutting edge and the broken surface down so that I get a smooth flat surface slanting towards the lingual wall and exposing an area of sound dentine on either side of the position of the pulp chamber. Now select a mineral tooth as near the character of the natural one as possible, and grind it down so as to leave little more than the incisor edge, which is then fitted in the mouth so that the natural tooth and mineral fit squarely into each other. A couple of holes are drilled one at either side into the natural tooth, and pins are fitted into them and then fused into the mineral and the operation completed as before.

I may mention that small pieces of mineral, such as I have been referring to, require very little to hold them permanently and securely in position.

Small pieces of mineral cut off from suitable teeth and held position by pins which have been fused into them, may of course be made use of where the cutting edge of the incisors has been worn down and the bite must be restored, or where we want to build up the anterior corners of molars, etc.

With bicuspid's one often feels that the most satisfactory operation would be to put on a gold crown, but is deterred from doing so by the gold showing too much in a position so near the front of the mouth. This objection may be overcome by facing

with mineral, but the teeth we have at our command are all too thick, and consequently take up so much room that we could not use one of them without first devitalizing the tooth. If we grind one down and fuse pins into the shell of mineral left we can then make a gold crown with a mineral face, which can be put on without destroying the nerve.—*Abstract British Journal.*

PEROXIDE OF HYDROGEN.

BY CHARLES MARCHAND, NEW YORK.

My attention has been called to an article read before the "American Pediatric Society," at Boston, May 4th, 1892, by Professor A. Jacobi, M. D., and published in the December number of *The Archives of Pediatrics*. This article is entitled, "Note on Peroxide of Hydrogen," and purports to be a "warning."

The learned writer at the beginning enters into a diatribe regarding proprietary medicines of all kinds, and endeavors by an extravagant list of diseases, (many of which have never been mentioned by me as being connected with the subject,) to convey the impression that, peroxide of hydrogen (medicinal) is a "nos-trum," and that the manufacturer of this article is to be classed among "quacks and patent medicine vendors."

He then commiserates the "immense number of unsophisticated medical men all over the country for their relative inability" to successfully "cope with the misery surrounding them," and intimates that the "trash" written regarding peroxide of hydrogen (medicinal) is not published for his hearers, who, being writers and teachers, are above the common horde of medical practitioners; with this compliment to his hearers and most uncomplimentary reference to "an immense number" of his professional brethren, Dr. Jacobi proceeds to mention several cases of diphtheria, which having been apparently greatly relieved by the use of peroxide of hydrogen (medicinal), finally were cured under the use of lime-water, as a spray and wash.

The inference drawn by the writer of the article in question is, that the peroxide was an "irritant," and had been of more harm than good.

It is not my province as a chemist to enter into a medical discussion with the learned doctor, but I would like to ask if, in

his opinion, a case of diphtheria can be treated successfully with lime-water only; and whether, in the cases he cites, it is not possible that the peroxide treatment was an important element in the recovery of these patients? I would also inquire whether the intemperate and in some instances personal allusions to myself and the preparation which I manufacture, are in all respects the outcome of professional investigation, and not the result of a desire to advertise himself by discrediting a remedy of which the therapeutic value has been proved by thousands of physicians who, though they may be "unsophisticated" from Dr. Jacobi's standpoint, are nevertheless known as eminent and honored professional men, all over the world.

The drift of this article is seemingly an attempt to prove that Marchand's peroxide of hydrogen (medicinal) is injurious.

In confutation of this, I append herewith, in as concise a manner as possible, the experience of a few prominent physicians whose statements may be taken as conclusive in the sense that they are learned and talented professional men.

In confirmation of my sincere belief that the claims made by me of the harmless character of my medicinal peroxide of hydrogen are true, I am willing to submit myself to a thorough test upon my own throat by spraying it with a twenty-five per cent. solution of Marchand's peroxide of hydrogen (medicinal) instead of a five per cent. solution as alleged to have been used by the learned doctor, for the same continuous number of days mentioned by him; and if any ulceration appears, or if the repeated applications of the remedy "does give rise to diphtheria," as he states may be possible; then I am willing to acknowledge that he is right. This test may be made at any time, with the utmost publicity.

I make this proposition in good faith from a scientific standpoint, and will expect Dr. Jacobi to make the test in the same spirit or acknowledge that he does not desire to do so.

[The statements that follow the article, and which, for want of space, we are unable to present, are favorable to peroxide of hydrogen, of which there is no preparation purer or more reliable than that of Marchand's.—ED.]

ALL SORTS.

Catching (B. H.) on Removing Broken Instruments from Root Canals.—I have several times removed broken instruments from root canals of upper front teeth, by drilling around them with a drill made from a broken bur and ground v-shape.—*Catching's Compendium.*

Browne (W. G.) on a Method of Making Gutta-percha Fillings.—Prepare the cavity, apply rubber-dam or napkins, dry out cavity with an absorbent, put in the gutta-percha and apply heat from a hot air syringe, which will both soften the material for working it and dry the cavity at the same time.—*Catching's Compendium.*

Barber (L. L.) on Banding Badly Broken Down Roots.—Take a narrow piece of platinum, 36 gauge, burnish it under the gum to perfectly fit the root, remove and solder, place again on the root and fill with either mouldine or plaster, take an impression with band in position, pour with Melotte's metal, and to the platinum band fit and solder a gold band.—*Catching's Compendium.*

Arnold (Otto) on Instruments for Trimming Gold Fillings at Cervical Margins.—Harlan's pushing motion right and left scalers, points ground to a chisel edge, are invaluable instruments for trimming off the surplus of gold fillings at cervical margins. Their shape and their flexibility in particular, are peculiarly adapted for this purpose, with less danger of injuring the tooth structure than from the use of files or other rigid points. Try them.

Richards (W. H.) on Obtaining the Exact Quantity of Rubber for Packing.—Take a level board and tack to it two strips of wood of the thickness of the rubber to be used, and about as far apart as the width of the rubber; make a rolling-pin out of a straight round broom handle, save all the wax from the case, warm it and roll out on the board until the pin touches the strips; the wax is now the thickness of the rubber; lay the wax on the rubber and cut the rubber the shape of the wax.—*Catching's Compendium.*

Williams (Dr.) on Treatment of Fractured Roots with Gold Wire.—I first wind a fine wire around the tooth, and then adjust gold wire slightly tight, and after soldering the ends together, spring it over just under the edge of the gum, so that the gum covers the wire. The root is of a sufficiently even size to hold the wire where it is, and the band stays in place by its own tension. The wire used is a non-elastic

wire. When in place there is not tension enough to strain it, and there is no chance of crowding the upper end of the tooth out.—*Extract International.*

Beach (H. E.) on a Telescope Crown for Attaching Artificial Denture.—Fit a gold band to the tooth to which the plate is to be anchored, remove it and fill with a quick-setting plaster. Make with number 40 tin foil an exact pattern of the telescoping band, make by the pattern the band, which will fit the first band perfectly. To the telescope band solder a lug, to which the plate is to be attached. Cement the first band to the tooth, place on the second band and take an impression which brings it with it, run a model and mount the teeth.—*Catching's Compendium.*

Jackman (W. T.) on a Method of Finishing Pink Rubber Around and Between the Teeth.—For this purpose take a little rubber cup and use a thin mixture of corundum flour and water. You know that the most difficult part of making a rubber plate when plain teeth are used, is to finish around and between these teeth. With this little cup, used with the engine as directed, the most difficult part has become the easiest, and it requires but a few minutes' time. You are enabled to get a polish on the rubber of the interdental spaces that it is exceedingly difficult to get in any other way.

Register (J. E.) on Treatment of Root Canals.—I rarely at the present day have a fistula to treat. Only yesterday a lady came in to see me. She had a central incisor that had been treated for a number of years in the usual method. I operated on the tooth but once. It had a fistula and a gum-boil at the end of it. I first washed it out with an atomizer, and after that by dilute sulphuric acid. I used this in about an eight-per-cent. solution, as a solvent to dissolve the carbonaceous matter that filled the tubulated structure of the dentine. I then followed this with Labarraque's solution. If there is a fistula it is given a treatment with acid of four-per-cent. solution. I avoid using air intensely hot.—*Extract International.*

Anthony (G. C.) on a Capping for Pulp.—Dissolve sufficient gutta-percha in chloroform to half fill an ounce bottle. Add oil of cloves, 20 minims; tannic acid, 10 grains; carbolic acid, 20 minims. Seal and shake until satisfied that there is a perfect mixture of the ingredients. Then open and allow the chloroform to partially evaporate. There will remain a putty-like mass, which is always ready for application. In applying it to pulps, use a piece of asbestos paper, cut to fit the floor of the cavity, lay it over the exposure, over which some of the mixture has been placed, then cover with oxyphosphate mixed to the consistency of

cream. This will aid in carrying off the surplus chloroform. Do not remove any of the decay from over the pulp unless absolutely necessary. Keep the mixture in a glass-stoppered bottle.—*Catching's Compendium*.

Poncet (Dr.) on a Case of Actinomycosis apparently following Extraction.—A woman, aged 30, in April last had a tooth extracted; and within a week complained of a swelling in the right sub-maxillary region, the lymphatic glands becoming very painful. The infection gradually spread to the region of the parotid gland and right cheek, abscesses and fistule forming, while for a week or so the patient complained of the discharge of pus from the nose and ear on the right side, as if abscesses had opened into these cavities. About November the temporal region became affected, while at the same time pulmonary symptoms developed, the patient rapidly losing strength. Cover-glass preparations revealed the characteristic ray fungus, which were more easily demonstrated in the pus than the sputum. Unfortunately for the patient only palliative treatment could be adopted.—*Extract Jour. Brit. Asso.*

Nickel Plating.—The following process of nickel-plating is said to give excellent results. The bath is composed of 1,000 grams of pure nickel sulphate, 750 grams of neutral tartaric acid ammonia, 5 grams of gallic acid (tannin), and 20 litres of water. The neutral tartaric acid ammonia is obtained by saturation of a solution of tartaric acid of ammonia. The nickel salt must be neutral. For this purpose the whole is dissolved in $\frac{3}{4}$ -liters of water, and allowed to boil for about a quarter of an hour. Then as much water is added as will produce altogether 20 liters of fluid, which is filtered. The precipitate obtained is very white, soft, and uniform, and bears no trace of roughness on the surface. On crude or polished castings, very heavy deposits can be obtained, and at a price which scarcely exceeds that of copper-plating. Galvanoplastic impressions may also be obtained in this bath. The current need only be weak.—*Phar. Record*.

Bethel (L. P.) on Convenient and Easily Made Pliers.—It is sometimes desirable to use wooden pliers, for instance in applying medicaments for bleaching teeth, in using drugs that have a corrosive action on steel, etc. And indeed often desirable to give a patient a pair of pliers that will answer the purpose of removing and applying a dressing in a tooth-cavity. The construction of such is inexpensive and requires but a few moment's time. Take two wooden tooth-picks, place a flat piece of wood between them at a distance of about one-fourth or one-half of an inch from the end, to act as a fulcrum for the pliers; with a little floss silk wrap the ends of the picks so as to hold them and the fulcrum in position, then warm a little base-plate gutta-percha and wrap

over the silk. This firmly holds the pieces in position and the result is a very good pair of pliers ready for use. By placing gutta-percha between and around the tooth-picks it can be made to act as fulcrum and all.

Jackman (W. T.) on Carrying Away the Germ-Laden Dust from the Teeth, so that it will not be Inhaled.—We dentists have to breathe too much of that which is not life-giving, but health-destroying. Therefore I as one hail with joy any suggestion that will lessen the offensive inhalations we have to endure while at the chair. I refer particularly to the germ-laden chippings blown from the cavity after the dam has been adjusted. These almost invariably fly out in the operator's face, and if they are allowed to float in the air about his head, he will of course inhale them. My assistant stands at the left of the patient, and immediately after my using the chip-blower, she wields a palm-leaf fan vigorously for a moment, which sends the chippings far enough away where they may settle to the floor and thus injure no one. If you are not fortunate enough to possess an assistant, then grasp the chip-blower with one hand and the fan with the other, nor think it time lost, for it requires but a moment, with a hundred-fold gain.

Schuhmann (H. H.) on Cancerous Growths of the Upper Jaw.—In the upper jaw there are but two locations from which cancer is liable to spring, from the gums, and most frequently from the mucous membranes lining the antral cavity. Beginning each time as a simple ulcer and gradually eating its way into the bone. The malignant infiltrating tendency of the sore on the gum is shown by the thickened firm edges and its immovable cases. If at any time an ulcer on the gum refuses to heal in ten or fourteen days, it should receive prompt surgical attention; should this precaution be neglected we may expect bone invasion. The next apparent symptom of the malignancy of the ulcer is the loosening of the teeth, which occurs after the vice has begun to invade the osseous structures. Even at this stage radical surgical interference is quite sure to be crowned with success, but the operation must be a radical one, and include a large range of adjacent tissues.—*Extract Review.*

Banfield (Dr.) on Treatment of Fractured Roots.—In the treatment of fractured roots I first tie a ligature around the root, bringing the parts closely together; then make an application of compound tincture of benzoin to the inflamed gums, and wait twenty-four to forty-eight hours. As soon as the soreness has sufficiently subsided, I drill a small hole through the fractured portions of the root near the gum and insert a gold screw. If there is a filling, it is replaced with Weston's cement, and care is taken that the opposing tooth does not strike the

fracture in the act of mastication. The ligature can then be removed. After the parts are held together awhile by the screw and cement, the inflammation ought to entirely subside. The crown or remaining portion can then be removed or so shaped as to receive a band or cap. This method applies to fractures extending some distance above the gum. If, however, the fracture does not extend too far above the gum, I remove it, and, in fitting the band, cut it so as to completely enclose the space made by the removal of the fractured piece.—*Extract International.*

Hypodermic Solutions.—Hypodermic solutions should be prepared with the utmost care, so as to exclude, as much as possible, all micro-organisms. If possible, the distilled water, vials, and everything coming in contact with them during the preparation, should previously be sterilized by a sufficient degree of heat. If this is not convenient, the solution, prepared with distilled water, should be filtered through a small pellet of pure absorbent cotton, pushed into the neck of the funnel. These solutions should be prepared only in small quantities, as they are liable to deteriorate by keeping. Many of them may be preserved for a considerable time by the addition of fifteen to twenty per cent. of alcohol or glycerine, or by the addition of boric acid (about five grains to one fluid ounce) *or by using chloroform water instead of plain distilled water for solution.* The last named agent is particularly useful. Preservatives should, however, not be added, except by direction, or with the knowledge of the prescriber. As soon as the slightest change is noticed in any hypodermic solution, it should be rejected.—*Prescription.*

Detective Antiseptics.—One of the great desiderata of modern surgery has been an antiseptic which would tell us when a part is antiseptically clean. This is especially so in the surgery of cavities which can not be seen, as sinuses, normal canals, etc. We have two preparations which we can rely upon as faithful detectives of the "we never sleep" variety—Marchand's peroxide of hydrogen, and potassium permanganate. The former, used in the fifteen volume solution, will cause violent effervescence if pus be persistent, and will continue to do so until all the pus has been destroyed. Potassium Permanganate in a 10-grain solution (10 grs. to $\frac{3}{4}$ 1 aqua) will turn from a bright purplish red to a dirty-brown color in the presence of any disorganized organic matter. It is also available for testing the purity of water for domestic uses. The brown stains of the skin caused by contact with the solution can easily be removed by scrubbing with a weak solution of Oxalic acid, to which a few drops of hydrochloric acid have been added.—*Med. Exchange.*

West (C. H.) on Properly Contouring Biscuspids and Molars with Amalgam.—I have been able to get as good approximal, contour

fillings in the molars and bicuspsids with amalgam as I often see of gold, by using for a matrix a piece of metallic finishing strip, held in place by the Booth matrix clamp, which consists of a steel wedge hollowed out so as to fit the contour of the crown, one of which is at each end of a strong clamp. This applied outside the strip matrix holds it solid and wedges the teeth apart at the same time.

Use a good amalgam as dry as possible, pack solid, wiping out the excess of mercury with pellets of cotton or bibulous paper, finishing with amalgam that is hot enough to expel the mercury.

Remove the clamp and draw the strip out sidewise, and finish with a thin strip between. The result is a beautiful contour, knuckling as close to the other tooth as though it had been built of gold, thus preserving the interdental space. Though I do not claim that amalgam is as good as gold, yet with care good results can be accomplished.—*Extract Review.*

Thompson (C.) on Reflex Action due to Imperfect Root Filling.—Patient lady, aged thirty-eight. She had experienced a great deal of pain in her left shoulder and elbow, (ever since the tooth was treated and filled a year previous.) especially when lying upon that side at night; that she was forced to sit up an hour or so every night and rub her arm to get relief from the pain. She had applied to a physician who prescribed for rheumatism without giving relief. I found a cement filling—left superior first molar, removed and found pulp chamber and root canals filled with cotton saturated with iodoform. Removed dressings, and syringed with peroxide hydrogen, and treated in usual manner with essential oils.

The day that the cement filling was removed her arm pained her so that she could scarcely sit in the chair, and it lasted about two hours after her return home, when it ceased and has not returned. After the second treatment she could lie on her side without a particle of pain, and she told me a few weeks ago that she had not had a return of it since the treatment of that tooth, showing a complete cure of the pain in the elbow as well as the soreness in the tooth.—*Extract Dental Review.*

Clancey (D.W.) on a Simple, Cheap and Efficient Matrix.—After dressing down the friable edges and excavating in part, adjust the dam and finish the excavating. Take a strip of German silver plate of suitable width,—the gauge may be determined by the space between the teeth, ordinarily about 29 or 30,—polish and burnish, insert between, leaving the ends stick out each side a trifle less than one-quarter of an inch beyond the teeth.

Scratch a line with an excavator across the strip on each side of and being guided by the width of the tooth. Remove the strip, and with a

suitable tool curl the ends back to the scratch, leaving the space in between the walls or shoulder so made just wide enough to engage the opposite tooth and hold the matrix from sliding laterally. Make the convex for contour of filling with a clasp tool.

If a dip is required to reach down below the cervical border, cut away with a stub corundum in the engine; it may be also cut away on the top for light and space if the lower part of the cavity is obscure.

The rolls may be so bent that they will spring over the swell of the tooth, which keeps the matrix from working out while filling.—*Extract Cosmos.*

Warren (H. N.) on a Quick Method of Refining Dental Alloy.—Take silver that is alloyed with from twenty-five to thirty per cent. of platinum. The latter metal will dissolve in nitric acid when sufficient silver is present, but in the present instance only some ten per cent. of the platinum passes into the solution after long boiling. The whole of the silver in the alloy is of course dissolved at the same time, and on introducing a bar of copper into the solution both the silver and platinum are quickly replaced. A further addition of nitric acid now redissolves the silver, leaving the platinum untouched. On dissolving the latter, together with the other fifteen to twenty per cent. of the same metal left at first, in *aqua regia*, precipitating by an excess of ammonium chlorid, evaporating to dryness and igniting, pure platinum remains. The silver is recovered in the usual way by precipitation as chlorid, but this method would be useless before removal of the platinum, since nearly a fourth of the amount present would be carried down with the silver chlorid.—*Chem. News.*

Taggart (W. H.) on a Novel Piece of Bridge-work.—In the case in question the eight anterior superior teeth are absent, the second bicuspid and first molar on each side are the only teeth remaining in the mouth; the proposed bridge is intended to carry the eight missing anterior teeth only. Dr. Taggart has capped the four teeth that are still in the mouth, over these he has carefully fitted crowns that can be readily removed though they fit very snugly; to fit the roof of the mouth between the bicuspids a gold plate was wedged and this was soldered to the four crowns, so that the result is practically a small removable plate held in by the crowns fitted to the four teeth. To fit over the plate mentioned, a platinum plate is swedged, this covers and exactly fits over the gold plate. To this latter metal will be attached the necessary teeth by baking, thus resulting in a case of continuous gum work. The platinum plate carrying the teeth will then be attached to the plate by means of some soft solder or by a process of sweating that will admit the removal

of the teeth and the platinum without necessitating any alteration of the crowns or the plate of gold which is attached to them. If the fact is borne in mind that there is always considerable danger of breakage and injury to an appliance of any kind, the advantage of being able to remove this for the purpose of repair or the changing of the teeth or any other reason, the usefulness of the procedure is at once comprehended.—*Dental Tribune*.

Fischer (Vincent) on a Rapid and Accurate Method of Fitting Crown Bands.—After shaping end of root take the measure with a loop of fine wire held in pin vise and twisted until tight, remove and slip it down on an old mirror handle or other tapering, elongated, conical shaped piece of wood or iron, working it carefully as far as it will go; mark its position by scratch with a knife passing around; remove it, cut open, straighten ends, cut strip of gold slightly shorter, bend around and solder to form band, and slip band down on the stick or mandrel. It should be found a trifle smaller than the circumference at the mark. If larger it will of course be necessary to cut open and shorten it. If much too small, slip over end of your small anvil or handle of some instrument, plugger for instance, and tap carefully with riveting hammer until stretched to desired size. I use my gold 29 gauge, 23k, and cut the strip from one-half to one line short, thus always permitting a little hammering to stretch band to required size. The band when complete to fit to root should reach just above the mark, never quite to it, or past it, to allow for stretching of wire in removing it from root and slipping on to the mandrel, and will almost always be found to fit at once, and tightly, thus saving your patient the annoyance and pain of repeated trials, and yourself a considerable amount of time. The cap and pin are completed in the usual manner. It seldom requires more than one to one and one-half hours to complete cap and pin to the point of taking the impression.—*Dental Review*.

Carter (T. S.) on Treatment of Compound Fracture of the Inferior Maxilla by Wire Sutures.—Patient powerful man, aged 19 years. I found the lower maxilla fractured transversely across the ramus on the patient's left side, also perpendicularly between the two fangs of the first molar on the same side, and likewise perpendicularly through the socket of the second bicuspid on the patient's right. The front portion was much displaced, being deeply depressed and exposing the second fang of the molar in its full length. The front portion was also considerably overlapping the posterior part, carrying the median line of the maxilla considerably over to the patient's left side. I took impressions in wax of both maxillæ. On May 20th the patient was

anæsthetised, and with a dental engine and a specially-made bayonet-shaped drill, I made a hole through the jaw between the first and second molars on the patient's left side, holding an oral spoon on the inner side to guard the drill from piercing the root of the tongue. I next passed a strong silver wire through the drilled hole and bored a second hole between the fang of the canine and the first bicuspid, and having brought the wire through from the inside, twisted the ends together and tightened them with pliers, I bent the tail down flat, so as to be out of the way. In addition to the suture, I applied a Hammond's splint, which fixed the fractured portion on the patient's right, and finally a well-ventilated gutta-percha splint. On July 7th the bandage and Hammond's splint and wire suture were removed. All was found firm and in good position.—*Lond. Lancet.*

Haskinsion (J. L.) on a Method of Preventing Porcelain Checking from Heat.—Fire checking of porcelain facings has been a great annoyance to me ever since I have undertaken to make a bridge or crown with porcelain facings. By the following method I have overcome this difficulty:

First, back your facing with very thin platinum, gauge 36, (Standard); and second backing, gauge 30, Standard. Now before placing this over the pins in the facing put on a thin piece of gold foil, 3 thicknesses of No. 4, then the thinnest platinum, No. 36, coat very thinly with borax, then place on the No. 30, press tightly down to the facing and bend the pins over to hold in position; then trim all off, not allowing any of the backing to lay over the facing, but keeping them independent of each other, and before final backing see that they do not touch; leaving a very small space between each backing. Now invest, remove all wax, around the teeth and the space left between the first backing, pack closely with gold foil; be sure not to let any borax come in contact with the facing, and this is overcome by packing in all the space between the caps. The foil being packed in this manner, the solder will flow all over alike as it makes a connection and leaves no places for the solder to jump, but makes it nice and solid with the gold foil. Also place a small roll of foil between the porcelain facing and the cusps, and force it down tight, and there will be no space left on the top of the facing after the Bridge is flowed, and also allows for the expansion of the metals, as the soft foil is between the porcelain facing and the solid cusp.

Hodgkin (J. B.) on the Cause of so called Rubber Disease.—Many reasons have been given for the disease called rubber disease. Some think that the vermilion in the plate is poisonous; some claim to

prove that free mercury exists in the plate; some that the closeness of the fit causes a mechanical damming up of the follicles, and still others hold that it is none of these, but that the rubber being a non-conductor, the heat of the tissues is, so to speak, penned up, causing irritation.

I have but one opinion about it. It is that the porous condition of the rubber plate, for all, even the best of them, are variably less porous, affords a lodging-place for germs which irritate the tissues. It has been well said that probably no culture field is better fitted for the development of germs than a rubber plate; and of all the dirty things I have ever seen about the mouth an unclean rubber plate is the foulest. And it is remarkable with what perfect innocence the plate is handed to the dentist for repairs, with sufficient food clinging to it to afford materials for a naked-eyed analysis of what was had for breakfast and possibly for days past. I am sure that in some cases no part of the plate was in contact with the mucous membrane. Only food. Foul, fermenting, filthy, the whole thing is superlatively dirty. Even in the mouths of the most careful and fastidious patients the rubber plate cannot be kept clean. This condition of affairs is simply impossible with a gold plate. It is only possible where a surface, such as a rubber plate has, presents place for attachment for pasty food, mucus, etc.

I honestly think that the so-called rubber disease is a disease mainly of dirt, and that in so far as we get rid of the occasion the disease will vanish.—*Extract Items.*

Smith (Dr.) on a Case of Regulating.—This case was treated in the Infirmary of the Harvard Dental School. The lateral incisors were crowded far inside the arch by the cuspids, and there might be a difference of opinion as to what teeth should be extracted. In this case I advised the student having charge of the operation to extract the first upper bicuspid. After that was done, an appliance was made to move the canines back into the place occupied by the first bicuspid. This appliance consisted of two Magill bands soldered together, and cemented to the bicuspid and molar on either side. On the buccal side of these bands was attached a screw, while the palatal surface held a small hook. To this hook a strong ligature was fastened and passed around a Magill band, which had been cemented to the cuspids and thence to the screw. By turning the screw backward the ligature was tightened, and pressure brought to bear upon the cuspids, which were slowly brought to place. The next step was to cement Magill bands to the laterals. To these bands were attached screws and nuts, the screws extending outward through an opening in a bar, which reached from cuspid to central. This appliance brought the laterals into line. There was no elastic or rubber in any part of the appliance. The screw is moved very gradu-

ally. I always caution students not to go too fast. You cannot move a tooth as you would a building on the street. With so much power one must be careful. I had a student bring out a lateral incisor from inside the arch in four days. It simply shows what a student will do if left alone with such an appliance. You can move a tooth more rapidly than you can produce absorption. Teeth should not be moved any faster than absorption takes place, unless the intention be to take advantage of the elasticity of the alveolar and spring it.—*Extract International.*

Morelli (Dr.) on a Case of Salivary Calculus.—The most recent case is Marie Dor, aged 36, cook, who came to me on the 13th of June, 1890. She complained, five days previously, that her tongue began to hurt her when she swallowed, and soon a swelling formed which rapidly enlarged, and when I examined it was as big as one's fist. I found the parts around the right sub-maxillary gland inflamed, hard and painful on pressure. The part beneath the tongue was inflamed, the inflammation spreading over towards the left side. The sub-maxillary gland was enlarged, and pushed up the tongue. Speech and deglutition were thus rendered very difficult. The mucous membrane beneath the tongue was impregnated with serous exudation. The duct of the right gland was blocked, and in the aperture was found a greyish-white body about the size of a pin's head, which on sounding and feeling I diagnosed a calculus.

With a blunt "lachrymal duct dilator" I enlarged Wharton's duct to about $1\frac{1}{2}$ centimetres, and then easily forced out the calculus by gentle pressure on the sub-maxillary gland. I treated the wound with 2 per cent. of carbolyzed glycerine, and kept the opening patent, daily using a fine sound for about six days; at the end of that time the inflammation disappeared, and the patient was dismissed.

This case proves that calculi form with little irritation, and easily escape the patient's notice, as in the case just mentioned, the patient not noticing anything until the 6th of June, when she perceived difficulty in swallowing and speaking. The calculus was 8 mm. long and 7 in diameter, and was quite hard. It weighed $2\frac{1}{2}$ grains, and was a little thicker at the end corresponding to the end of the duct, there being a groove which made it resemble a coffee-grain.—*Extrañ Jour. Brit. Asso.*

Jack (Lewis) on Granting Certificates of Qualification to Under-graduates by Examining Boards.—I have examined the laws of the various States, principally as they are reported in Rehfuß's "Dental Jurisprudence," and find the following States give any person the right without qualification to demand an examination as to their attainments,—viz., Alabama, California, Colorado, Delaware, Georgia, Illinois,

Indiana, Iowa, Louisiana, Maine, Massachusetts, Michigan, Mississippi, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin.

The following States qualify this privilege by requiring evidence of previous study: New Jersey makes five years' preparation a necessity. New York if a "period of four years of regular study has been pursued." North and South Dakota each require "three years' previous study under the supervision of some regularly practising dentist."

The States which do not examine such persons are Arkansas, Kansas, Kentucky, Maryland, Minnesota, Missouri, Nebraska, and Ohio.

It is thus to be observed that the laws of twenty-eight States permit the examination of non-graduates, and that those of eight States do not authorize the examination of persons unqualified by the various schools.

While it may have had some justification in the early legal regulation of dentistry, since at that time it would have been difficult to procure legislation without granting this right, it certainly is not in consistency with the views of leading men. The new laws as they are amended should withdraw this privilege. That it may be done is conclusively proven by the fact that, as alluded to above, eight States require graduation as a qualification to enter practice; and as no legal question upon this point has arisen, so far as we are aware, it may be taken for granted that no impediment has been encountered.—*International*.

Gramm (C. T.) on a Method of Treating and Filling Root Canals with the Aid of Electricity.—The operator is to consider the root ready for filling, to have rubber-dam in position, and the canal wiped as dry as possible. A "copper canal-point," just fine enough to easily fit the canal, and long enough to allow one end to remain directly visible, is inserted. By means of a storage battery (thirty-five ampere capacity) an electrode is brought to a bright red or white heat and held in contact with the protruding copper point. If there be much moisture in the canal, a hissing sound is heard almost instantly. Contact may be maintained until slight pain ensues, and if necessary, renewed until that object—namely, perfect drying of the root canal and largely the tubules—is attained. The point may then be removed, and after the canal has been moistened with oil of eucalyptus, again inserted. Exception to removal of the point is found whenever the canal or canals, as in the molar group, are exceedingly narrow; in these instances it will quite suffice to drench the floor of the pulp-chamber, leaving the cone in position.

The medicament will readily follow the point, and indeed move beyond it, owing to capillary attraction. The heated electrode is again

applied with a view to increased germicidal energy, and to greater penetration of the heated oil and its pungent vapor into the remotest recesses, into possible pulp-remains, and partly into the tubules of the dentine. A sufficient quantity of base-plate wax is then packed into the pulp chamber, and for the third time the heated electrode is applied. Almost instantly the melted wax will follow the course of the point to its remotest end attracted by its oiled walls will penetrate every crevice presented.

Again, as before stated, any shred of pulp or foreign matter left within the canal, having been first dried, then rendered aseptic, will now be permeated and imbedded by this filling-material, thus preventing decomposition thereafter. The point is to be left in position, cut short, or bent over, and a layer of cement placed upon it; this latter is an unnecessary addition if the crown cavity is to be filled with amalgam.—*Extract Cosmos.*

Barker (D. W.) on a Few Useful Devices.—The cork cones described are of various sizes with a hole in the center for the screw of the lathe, the large ones having a metal screw center.

In my hands they have taken the place of the scraper and file in finishing up rubber plates. It is an actual fact that I have not filed or scraped a plate in months; these cones do work much more rapidly than the file and scraper can do it, and it is done better, there being no gutters or uneven places. As an adjunct, merely to sandpaper a plate after scraping and filing, if one chooses to do that way, they are a great help, saving much time and presenting a better surface for polishing. The extra strips are, I think, cut about the right size, the biased end should be started in the slit, and a little practice will enable one to wind the paper smoothly on the cork. If the strip is too long, the ring will join before it gets to the butt of the cork, and if it is too short it will be too loose. These extra strips are made of ruby paper, a very sharp rapid-cutting paper. It also is excellent for making discs from.

The strip of German silver plate. A few uses may be indicated as follows: For attaching gold clasps to rubber plates by means of German silver lugs, loops, or bars soldered to the clasp; for attaching plate teeth to rubber plates in short bite by means of German silver plate soldered to teeth in the usual way. As backing for plate in ordinary soldered work, the German silver should be entirely covered by the rubber or gold solder. In making regulating devices, it can be used in a great variety of ways for bands, bars, loops, etc.; also for crib work and retaining devices.

The German silver wire: It has uses similar to the plate for strengthening rubber dentures, to prevent breaking down through the center. In regulating devices it has the advantage over piano wire that it can be

soldered to clasps, etc. It is excellent for pins, crown- and bridge-work. This wire and plate is the finest quality made. It is 18 per cent. pure silver. It can be soldered with 18k. or 14k. or silver solder, borax or Parr's flux. No care is needed in soldering, as it is almost impossible to burn it under the blow pipe (I have never succeeded in doing so, and I've tried several times with a powerful blow pipe). Rubber hardens perfectly and solidly in contact with it (which it does not do in contact with some metals). If you give it a trial for such uses as above indicated, I am sure you will like it. It will not disappoint you. After soldering, the German silver cleans up nicely in sulphuric acid, just the same as gold plate, and takes a beautiful polish, if desired.—*Extract Items.*

Hugenschmidt (A. C.) on Tropacocain as a Local Anesthetic.—As a local anesthetic I have employed tropacocain thirty-seven times, without using, however, more than one-half grain at a dose. The preparation which I have used is the following :

Tropacocain hydrochlorate, 2 grains ;

Distilled water, gtt. 1 (50). M.

S.—gtt. x for one local anesthesia.

The injections are made as in the case of cocain. The root or tooth to be extracted or region to be operated upon is surrounded by a series of injections of one or two drops of the above liquid until the ten drops have been used.

I have been able to extract roots, penetrate the alveolus, and remove a sequestrum without the least complaint on the part of the patient, the injection itself being painless. The local anesthesia produced is much more rapid than with cocain, and commences forty-five seconds to one minute after the beginning of the injection. The anesthesia lasts longer and appears more developed than with cocain. But one point on which we must insist ; that is, that this injection be not made suddenly ; at least one minute should be employed in injecting the dose. In this respect let me mention a method which I have used with success in several cases of cocain accidents, and that is, that as soon as toxic symptoms appear I introduce a lancet into the injected region, so that the flow of blood may wash out the part of the injected liquid which may not have yet passed into the blood-current, and so reduce the chances of too severe poisoning.

1. Used in an equal dose sufficient to produce local anesthesia, the new drug is much less toxic than cocain, and has a very slight action on the vital functions of the economy.

2. It produces a local anesthesia more rapid and more pronounced than cocain, and of at least as great a duration.

3. The solution of the salt being an antiseptic, can be kept for several months without decomposition, while after a few days a cocain solution is worthless for injections.—*Extract Cosmos.*

Pruyn (C. P.) on a Case of Anæsthesia of a Part of the Roof of Mouth, and of loss of Moustache on One Side of Lip, Due to Irritation from a piece of Bridge-Work.—As the history of unusual cases is always interesting, I will call to your minds the case of a gentleman that I presented before this society some three or four years since. If you remember, the case was that of anæsthesia of a portion of the roof of the mouth, extending from the mesial line in a semilunar form, and about the size of a silver half dollar, extending back to the first molar on that side, caused by the insertion of a bridge extending from the right central to the left cuspid, the pulps of these two teeth having been removed through openings which were drilled upon their lingual surfaces; and the pulps were removed by the knocking-out method and the bridge completed and inserted at the same sitting. This patient was somewhat neurasthenic at the time the operation was performed, and must have suffered considerably. The anæsthesia appeared almost instantly, and continued for a period of several months, until he became a complete nervous wreck at the time when I first saw him. The moustache upon the same side of the lip, extending up to the medium line, gradually died out, until not a hair was left on that side of the lip. The hair of the head embraced in the territory of the left side which is supplied by the auriculo temporal branch of the fifth nerve also came out. If you remember the case sufficiently well, you remember that we thought the only remedy for the trouble would be the removal of the bridge and the removal of the pulp canal fillings, which we felt sure in some way caused an impingement upon live nerve tissues, and by reflex action the different injuries were produced. The nervous condition of the patient was such that I found it impossible to do anything more than to cut off the attachment of the bridge at either end, but could not open up and remove the pulp-canal fillings. The simple removal of the bridge, with constitutional and hygienic treatment seemed to produce a perfect cure at once, with restoration also of the hair and moustache within a months' time.

After a lapse of about three years, severe neuralgic pains again set in. Another effort was then made to remove the pulp canal fillings, which was unsuccessful on account of the extreme nervousness of the patient. The only thing that we could do at that time was to remove the right central, which presented upon removal a piece of the orange-wood wedge that was used in knocking out the pulp, and left projecting nearly one-sixteenth of an inch beyond the root. For some reason na-

ture had tolerated this great irritant with comparative immunity from pain for a period of nearly three years after the removal of the bridge. The irritation had become so chronic that the right lateral was suffering from a very slight pericementitis, but in the weakened condition of the patient, extraction seemed to be the only remedy, when a complete cure seems to have been established. The interesting part of this case is the loss of the left half of the moustache and of the hair of the left side of the head, and the return of the same in normal growth and color within a few months after the removal of the bridge.—*Extract Review.*

Murray (G. M. P.) on a New Form of Removable Bridge-work.—A bridge was required carrying six front teeth, to support which there were four stout, healthy roots—the canines and lateral incisors—the centrals being gone. The difficulty lay in the fact that all these four roots were so divergent that no two of them were even nearly parallel, and to cut the canals parallel would have entailed a greater loss of tissue than they could have afforded. Several obvious ways out of the difficulty presented themselves, but bearing in mind the great desirability of all such work being removable, the following plan was adopted.

Into each of the four roots was inserted a Balkwill tube. The pins, when placed in these, lay in varying planes, which crossed each other at different angles. In the bottom of an impression tray were punched four holes, through which, when placed *in situ* in the mouth, the pins protruded. The impression was taken in “stent,” and when this was hard, before its removal from the mouth, each pin was carefully withdrawn in the line of its axis. The pins were afterwards replaced in the impression, and the model cast.

The bridge was made in two spans—in fact two bridges—one of which it will be sufficient to describe, for the other was like unto in every respect.

The canine was pivoted in the ordinary way as a single tooth, but from the mesial side of the plate covering the root top extended a bar, carrying, first, a plate carefully fitted to the surface of the lateral root, pierced in the center by a hole corresponding with the opening of the Balkwill tube, and beveled away to nothing anteriorly, and secondly, the central of its own side. This having been tried in the mouth, was replaced on the model, and the lateral incisor pivoted over and through the plate covering its root, thereby pinning the bridge into its place, and preventing the whole thing turning on the pin of the canine.

The two bridges, when placed in the mouth, seemed to answer their purpose admirably, and certainly possessed these advantages.

The work was firmly fixed and yet easily removable.

The benefit was obtained of the support of all the sound roots whose

full strength was perceived, owing to the canals not requiring to be cut parallel.

All parts went home true and easily, obviating liability to lateral strain, and consequent pericemental irritation.

The very divergence of the roots gave an extra security for the fixity of the bridge, as, when in its place it could not be drawn down in one piece.

I have thought since that the whole might have been rendered even more secure by interlocking the two bridges, by letting each bar pass behind the central of its own side, and carry that of the opposite side.—*Extract Jour. Brit. Dent. Asso.*

Kirk (E. C.) on Sodium Peroxid as a Bleaching Agent and Antiseptic.—Sodium peroxid differs from hydrogen peroxid in the important particular of its relative amount of available bleaching oxygen, which is stated to about twenty per cent., against only from three to four per cent. in the ordinary commercial solutions of hydrogen peroxid. As a tooth-bleacher and sterilizer of putrescent canals and tubuli—for the former implies and includes the latter—it has an important additional saponifying and solvent action upon the oils, fats, and animal tissue which permeate the dentinal structure, and which so often act as a formidable barrier to the ingress of the bleaching agents ordinarily used. This saponifying action will be seen at a glance when it is noted that the Na_2O_2 by the loss of one atom of O becomes Na_2O ; this immediately by combination with a molecule of water becomes NaOH , or the ordinary caustic soda which is used in the manufacture of soaps.

After having made a standard solution by dissolving the compound in water to the point of saturation, other solutions of different known strengths can be made from it by adding water in definite proportions to measured amounts of the stock solution. In strong solutions sodium peroxid is a powerful caustic and solvent of animal tissue, as well as a saponifier of oils and fats. These qualities are modified and regularly lessened in intensity by progressive dilution with water. I have used in the treatment of pulpless teeth with putrescent canal-contents, solutions varying in strength from full saturation to one containing about five per cent of the saturated solution. The most striking illustration of the valuable properties of the compound, is the effect produced upon those cases of offensive putrescent canal-contents when the whole structure of the dentine is permeated and colored by a stinking and fermenting mass of decomposing organic matter, with often a blind abscess as an accompaniment to add to their foulness.

I flood the pulp-chambers and canal with strong solution (fifty per cent., or even saturated) of sodium peroxid, of course having the dam

in position to prevent contact of the solution with the soft tissues of the mouth. The activity of the compound is at once made manifest by the evolution of gas, which takes place similarly to that which arises when hydrogen peroxid is used under the same conditions; the action is not, however, so violent or rapid as with hydrogen peroxid. It differs also in two other important particulars from hydrogen peroxid when so used,—viz, the bleaching of all carious and colored dentine in contact with the solution proceeds rapidly, and is quite visible in its progression during the few minutes time employed in one application of the treatment.

In addition to this bleaching action of sodium peroxid is its valuable saponifying and solvent property. The small shreds of pulp-tissue and organic matter in a partially decomposed state are loosened from the canal-walls and tubuli and saponified, the mechanical effect of the evolution of gas by the action of the sodium peroxid greatly aiding in the cleansing process, which when fully carried out results in complete sterilization of the tooth by the action of a compound which combines the properties of a mechanical cleanser, a solvent of the organic *debris* and fats, a perfect sterilizer of the dentine, and an active bleacher. I have adopted the plan of neutralizing the alkali in teeth so treated by inserting in them for a moment on cotton a diluted solution of hydrochloric or sulfuric acid, afterward washing, and drying with hot air, and then immediately filling them, and out of a considerable number so treated there has not been one case of pericemental irritation even to the extent of soreness.—*Extract Cosmos.*

Bonwill (W. G. A.) on the Proper Fitting of Clasps so as to Prevent Wear and Caries.—The metal should be of platinized gold only, without any lining of pure or twenty-two-carat gold soldered on it next to the crown. The metal should be loosely fitted to the crown on the plaster cast and afterwards fitted in the mouth directly upon the tooth and made to touch in at least four places. It should not fit accurately every inequality of the surface.

If a clasp fits minutely all the surface of the crown, it makes of the minute space between the crown and clasp a capillary surface, and keeps the mucous secretions, as well as the fine food, forever in contact and with no space for circulation of the saliva. Whereas, if the band touches but a few places on the tooth crown, it will rest just as firmly if it has been well fitted in the mouth and allowed to take its own position when tried upon the crown.

Capillary power made by surfaces very closely approximated is the surest means of producing caries. Where a space is left, the points that do touch are in absolute contact, and, aside from a slight wear on the tooth, the surface cannot decay as when there is an actual and close fitting. If made of pure soft gold, there would always be danger.

The width of clasp should be as great as can be made, and to steady the plate without grasping it firmly.

Next to the clasp in importance is to know where it should be soldered to the plate, and on which side of the crown to allow it to go and off, where the crown is very much out of perpendicular. The gold amalgam does not discolor to any considerable extent.

I prefer to allow the edge of the filling to stand outside of the clasp and not rest underneath it at the top or next the grinding-surface, and I do not hesitate to use the corundum wheel upon the enamel where slight projections interfere with a clasp resting securely. No harm can result where the cut surface is polished. If caries should occur at any point thereafter from accumulation of food, I should fill with amalgam. But this need not often result when cleansed after each meal.

Each case must be thoroughly studied after the plaster cast is made, or the result will not be satisfactory. The points on the clasp and plate where the plate is soldered to connect them *are the vital parts*, and, unless judiciously chosen and the bar made of platinized gold wire and the base plate of two pieces of gold soldered together to stiffen it, and the clasp of proper width and thickness, the strain placed upon the mechanism will break it. The bar holding the clasp and plate must always be upon the side of the tooth where there will be least resistance. Take a second inferior molar that has tipped forward very much and also inclines to the tongue. Here the soldering should be done as far back on the buccal side of the clasp as can be accomplished. Then the spring of the clasp is not needed for the buccal side, but for the anterior and lingual sides, where projecting from a perpendicular. If soldered from the lingual side, it would be impossible to get the clasp on or off.

In the upper cases it is generally the reverse, although there are many exceptions, and no rigid rules can be laid down. Each one must be specially studied, or no good results. Nor can you rely upon fitting plate and clasp to the plaster-cast and soldering from that,—no, never do it! Take the trouble to take impression of both plate and clasp in the mouth, and then solder from that.—*Extract International Journal.*

Stapleford (A. D.) on Closure of Jaw due to Irritation of Wisdom Tooth.—Mr. H. White, married, aged thirty-three, applied to me for treatment September 30th, 1892, complaining of stiffness of the jaw, which condition had existed since last January. At times since then he had been able to separate the jaws, but not more than one inch. At present cannot separate them more than half an inch. Has never had pain or difficulty in swallowing until about four weeks ago. Patient poorly nourished, spare build. Appetite poor. Has had profuse diarrhoea for a week. Temperature normal; pulse 90.

I attempted to force open the jaws with a wedge, but did not succeed in separating them more than half an inch. After several attempts I succeeded in obtaining a limited inspection of the throat, and observed some swelling in the lateral aspect of the throat, left side, involving the pharyngeal tissues and soft palate; tonsils not much enlarged; uvula displaced to right. Almost buried by overlapping tissues, I discovered a wisdom tooth on the left side, lower jaw, which was peculiar in its growth in that the superior surface was directed forward and outward, indicating that the root had grown backward and inward. There was no tenderness or swelling at the angle of the jaw.

I at once concluded that the cause of the closure was due to the irritation caused by the tooth, and, after prescribing for the diarrhœa, directed the patient to a dentist, thinking that when under the influence of gas the muscles would relax sufficiently to enable him to insert the forceps and extract the tooth. The patient obeyed my injunctions, but the dentist refused to attempt its extraction until he had reduced the swelling in the throat, which he proposed to do by the application of iodine.

October 3d I saw the patient again, at his own home. Complained of painful deglutition; bowels constipated. He was not able to lie down because of difficult breathing when in the recumbent position, and could not open his jaws more than one-quarter of an inch. I increased the opening slightly with a wedge and made half a dozen punctures with a knife in the pharyngeal enlargement, with the result of free hemorrhage and some relief to the patient. Ordered poultices and prescribed a gargle of chlorate of potash and tincture of iron.

There being no improvement after forty-eight hours of this treatment, I determined to anæsthetize the patient, force open the jaw, and extract the tooth, at least. The patient refused the anæsthetic. With a gag the jaws were separated to the extent of an inch and a half (which caused excruciating suffering to the patient), and the tooth was extracted. This was followed by the outflow of a large quantity of foul-smelling pus. After the gag was removed the jaws were found to close as tight as ever, and it was out of the power of the patient to separate them. However, I did not anticipate much trouble, and was somewhat surprised on my visit the next day to find that the patient had passed a sleepless night, had more difficulty in swallowing, and was in a generally depressed condition. On examination I found that the pharyngeal enlargement had increased in size. Directed poultices to be applied more energetically.

The progress of the case for the next three days was simply an increase in severity of all the symptoms. An inspection of the throat

at this time showed a discolored enlargement peering out from behind the soft-palate; also a yellowish spot the size of a pin-head on the soft-palate near the margin, at the left side. An incision was made at both points, with the result of getting fully half a pint of pus.

The patient from this time on made an uninterrupted recovery, each day the jaw being separated a little more than the preceding day, and this without any forcible measures.—*Lancet Clinic.*

Shields (N. T. and L. N.) on a Method of Constructing a Perfect Fitting Gold Crown.—The whole crown is cut off almost even with the gum; there will still be a thin portion of the enamel left surrounding the root, and this can easily be removed by using the No. 2 and No. 3 scalers made by the S. S. White Dental Mfg Co.

Around this conically shaped root (the removal of the enamel alone will generally shape it sufficiently) fit a twenty-two karat gold band so as to come in contact with all parts of the conical portion of the root, which gives us a conical band. To make this band, make a tin-foil model. From this an absolute shape in gold is obtained more quickly, and a saving of gold results. This band is soldered with twenty-two karat solder, then placed in position and its free margins ground down even with the root-end.

Next prepare the band for a pure gold floor by taking a Butler conundum-point and hollowing out the upper or small end by beveling from the inside edge so as to allow room for the solder. Although only an infinitesimal amount of solder runs inside, still we must have a place for that little to flow; otherwise the band could not go back into place, on account of the solder flowing inside, and we must have the solder to flow inside in order to make a complete cone externally. Now take a piece of pure gold (No. 34 American gauge) and cut just a little larger than the band, anneal it and adapt it perfectly, then place the two in a No. 7 Melotte soldering clamp, and be sure they do not move; place borax all around the over-lapping edge of pure gold, place a small piece of twenty-two karat gold solder at the junction of the band and floor.

Now make the pivots (of platinum and iridium wire), and roughen them before placing them in position. Drill holes corresponding with the root-canals, place the pivots in position, and fasten them to the floor with prepared hard wax. Now remove carefully and invest pivots, floor, and band in equal parts of plaster and marble-dust, and after removing the wax with boiling water, solder the pivots to the floor with twenty-two karat gold. Now cut down the overlapping pure-gold floor exactly even with the band, also cut down the projecting ends of the pivots. This constitutes the foundation for a solid gold crown. Never make pivots for canals which cannot be thoroughly filled with cement. It

is better to shorten the pivot somewhat, and make it thicker, and depend for anchorage only upon the lower part of the canal.

Now put the foundation in its position in the mouth (upper jaw, for example), and take an impression of the whole upper jaw in modelling compound; also take an impression of the whole lower jaw. Next, remove the foundation, and place it with great care exactly in its proper matrix in the impression just taken, then stay it to the modeling compound with wax in two or three places; be careful not to move it with the wax-knife, dry the pivots and band on the inside, and cover the pivots with a film of wax; also run a film of wax around the band on the inside, but be sure to remove all wax from the edge of the band, because we want that to rest firmly upon the plaster. Now fill the impression with plaster to make a model.

After separating the model, remove the crown-foundation from the model by making a hole, usually on the palatal surface, with a pocket-knife through the plaster to the apical end of the pivot. Now place the model and foundation in hot water, and with a little pressure on the end of the pivot the whole foundation is easily removed. Syringe out all wax from the model and foundation, and replace the foundation on the model.

Next make the stamp for a grinding surface; use for this pure gold, 34 American gauge. The molar or bicuspid stamp is made in the usual way by placing the pure gold, always well annealed, on a piece of lead and striking a few light blows on the die, which gives a perfect grinding surface.

Next trim off all surplus gold. The cusps are next filled with twenty-two karat solder. The reason we use twenty-two karat solder is, when we fill in the whole space between the grinding-surface and the foundation with twenty karat solder, there is no danger of the twenty-two karat being melted out of the cusps, and consequently no danger of having an air-bubble just under the grinding surface of No. 34 pure gold, which, of course, would make itself visible after a few day's use.

Having taken a full impression of both upper and lower jaws, we are able to get an absolutely correct articulation. We now add wax to the foundation, which can be removed from the plaster, until we get an exact articulation with the pure-gold grinding-surface. After having gotten this with hard wax so that it may be manipulated without disturbing its position, we continue to build out the tooth to its anatomically correct contour with wax, frequently trying it into place. After the foundation is removed from the plaster, the plaster is cut away from between the foundation and the adjoining teeth without disturbing the plaster upon which the band rests. When this plaster is removed, wax is added up to the very edge of the band, so that the entire anatomical

contour can be restored with gold, including even that of the enamel chipped off at the cervical margin. The wax tooth should always be tried in the mouth, to be sure that everything pertaining to form, contour, and position is just right. This was the object of removing the foundation from the plaster model at the outset, as it is a great advantage and particularly so with facings, to always just at this time try the tooth in the mouth.

Now from a piece of tin foil (No. 60) a model is cut so as to fit the wax exactly. We cut the gold on the palatal surface from the height of foundation, thereby enabling us to join the free ends at the cervico-palatal surface. The large ends of the gold we turn out and back, so as to stay it in the investment of plaster and marble-dust. The gold can be cut a little long, so as to allow of bringing the cervical ends together. This cervical margin is very important. This gold band must fit just under the edge of the grinding-surface stamp, and in perfect contact with it, so as not to allow the grinding surface to move. This little thickness of pure gold, No. 34 American gauge, must be allowed for when we wax up the tooth.

Now we have the wax tooth thoroughly boxed in, excepting the palatal surface. Before taking the next step, be sure that the pure gold band for boxing is in contact with the cervical margin of the foundation band. At the point of junction here, and at the grinding surface place a little wax, and then cut all possible surplus away, leaving only the very junction filled; also be sure no wax gets on the inside of the cervical margin of the foundation-band. Now place the tooth in water and invest it in plaster and marble-dust, covering the whole tooth except the palatal surface of the crown; the plaster must just cover the narrow gold joined at the cervical margin. After the plaster sets, boil out the wax and cut the investment as small as possible, leaving the plaster only about one-eighth of an inch all around. Now dry thoroughly, but not in contact with a flame; have something, a top of a tin box, for instance, between the flame and the tooth. After it is dry, place it in the flame of a small Bunsen burner. To hasten the heating-up process, a foot blow-pipe may be used to get it red-hot very quickly, but nevertheless the heating up is to be done cautiously, and during this time we still have the little Bunsen flame under it. Now by applying the flame of the Knapp blow-pipe, the gold flows with the greatest ease in all parts and in all directions, like melted butter. Here we use twenty-karat solder. We about half fill the molar with gold, using borax as a flux, before we use the Knapp blow-pipe.

It should be observed that we have the solder almost to the melting point, everything is red hot, and a hot flame beneath the investment, so

that when we gently apply the Knapp blow pipe flame the gold simply drops, and while in this molten condition we add the rest of the solder, never allowing it to cool for one moment, for if it does, air-bubbles will result. Here the gold boxing-band at the cervico-palatal margin does its work beautifully; the gold flows freely all around, with no danger of solder running inside the foundation from the palatal side. The plaster and marble-dust should always be worked as stiff as possible, so as to always have the gold in contact with plaster, which will not be the case if the investment is mixed thin. The necessity of having everything firmly held, so that the gold solder will not pull it in and change the entire shape of the crown, becomes evident when the large amount of solder used is considered. This being a solid crown, we put it in water to cool it, and next in sulphuric acid very dilute, and gently heat it to remove adhering oxid. Now we can shape the gold to anatomically correct contour lines, and bring the cervical margin down to a feather-edge, so that when again placed on the root we have an absolute junction without a lodging-place for acids, and the whole tooth restored to a state of perfection.—*Extract Cosmos.*

EDITOR'S NOTES.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

It is now definitely settled as to just when the Congress will take place—August 14th to 19th—and every dentist should cross off these dates and arrange to attend this meeting. There will be a larger concourse of dentists than has ever before been known. The prominent dentists of all Europe and America will be there. The exhibits promise to be very interesting. Many relics of ancient dentistry will be shown.

Regarding the Congress Dr. A. W. Harlan says:† “I want to say now, that the greatest opportunity of your life is before you. In this year of 1893 you will have the privilege of attending the greatest scientific convocation of dentists that the world has ever seen, in the City of Chicago. In connection with the officials of the World's Columbian Exposition, all the members of the dental profession in the City of Chicago, in the State of Illinois, and of the whole Northwest, are making preparations to entertain as best they can those gentlemen and representatives of our profession residing in other portions of the country. I desire

†In an address before the First District Dental Society, Jan. 10th, 1893.

now to say that the Executive Committee, of which the chairman of the executive committee of this society is the honored head, have been at work for more than two years preparing for this great event in the history of dentistry, and that it is expected from the careful deliberations of that committee of fifteen that there will be assembled in Chicago about the middle of August of this year, dentists from every clime. We have letters from China, Japan, Sandwich Islands, Peru, Chili, Argentine Republic, the West Indies,—everywhere. To-day I received a letter from France, our sister republic, and they say they are all coming, coming with one accord, to participate in this event, which will long be remembered. I hope you will all be present."

In an editorial in the March *Cosmos*, Dr. E. C. Kirk, who is chairman of the Committee on Essays, says:

"The character of the essays which have been promised by leading men is such as to guarantee the high scientific phase of the work. Over thirty of the most prominent investigators and writers in the dental profession in various parts of the world have announced their intention to be present and read original essays prepared especially for the Congress. Their names, with the subjects of their papers, will be published at an early date, as soon as the list is completed. Those who desire to present papers before the Congress should announce their intention to the chairman of the Committee on Essays without delay, giving the titles of their papers, to avoid confusion in the work of the program committee at the last moment."

The work of all the committees seems to be progressing favorably, and there is no question but that all the available time will be profitably employed. It is to be regretted that the full ten days' session could not have been allowed, but still, with meetings called to order promptly, there is an opportunity for a grand work, and you may depend upon it that it will be thoroughly accomplished. Be sure to cancel these dates from your appointment book, and make arrangements to visit the "Windy City" during the week of August 14th to 19th, 1893.

THE following we clip from the March *Items of Interest*:

"The *Ohio Journal* (thanks for the abbreviation) comes to us in a beautiful new dress, and much improved every way. My! what work must have

been put on the first number of this year! And we are promised quite as much vim and enterprise in succeeding numbers."

Probably there is no dental editor who better realizes the amount of work it requires to condense dental literature into a concise, yet readable form, than does Brother Welch, of the *Items*. When he remarks: "My! what work must have been put on the first number (January OHIO JOURNAL) of this year," he states a fully realized truth. For some time we have realized that the crying demand was for *information more condensed*; and with good resolutions for the "Columbian year," we are endeavoring to supply that demand. The old adage: "There is no excellence without great labor" spurs us onward, and from the surprising increase in our subscription list, and from the hundreds of letters of praise and appreciation, written us by our subscribers, we know that our efforts are not in vain. We realized when we made the promise to continue in this line, that we had a load on our shoulders; but, if the machinery holds out, we'll express it through. Just keep your eye on us.

NEW PUBLICATIONS.

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY FOR 1892.—B.

H. Catching, Editor and Publisher, Atlanta, Ga. Price, \$2.50.

The issue of 1892 contains 282 pages, and 368 practical items. Great care has been taken to thoroughly condense all articles, yet make them clear and concise. This issue is an improvement over former numbers, typographically, etc., while in point of practical importance it is filled with good ideas, and among them we find many original articles. The work has been divided into Operative Dentistry, Crown- and Bridge-Work, Orthodontia, Dental Medicine, Oral Surgery, and Miscellaneous Items. As a book for reference it is excellent, and in it may be found all valuable practical ideas given the profession during 1892 in the various dental journals. It should be in the library of every dentist, and we are sure that Dr. Catching will be prompt in sending you a copy if you remit him \$2.50, the subscription price of the book.

BOOKS RECEIVED.

HISTORY OF THE LIFE OF D. HAYES AGNEW, M.D., LL.D.—By J. Howe Adams, M. D. The F. A. Davis Co., Publishers, Philadelphia.

BRIEFS.

— RESORCIN gr. x., oil cinnamon, minims v., alcohol, minims, lx., water, $\bar{3}$ ij. Inject into pus pockets around roots of teeth.—*Review.*

— “I believe that the careless use of arsenic has contributed in no small degree to the death of pulps in adjacent sound teeth.”—W. G. BEERS.

— LET us be mild and obliging, let us be agreeable, always good tempered, always kind, always neat, and above all, always clean.—T. L. HILL.

— TUMEFIED gums are usually treated without the use of any knife, and will yield permanently to local and systemic treatment.—H. H. SCHUMANN.

— To prevent porosity in thick vulcanite, where bulk is desired without weight, mix in pieces of fine grain cork when packing with vulcanite.—B. H. CATCHING, *Compendium.*

— THERE can be no pain without a reason for it, any more than there can be an effect without a cause; and it is our duty to find the cause, even though it may be very obscure.—C. P. PRUPN.

— To remove broken instruments from root canals, pump eucalyptus oil into the canal, which so softens its walls that the instrument can be readily removed.—T. P. WILLIAMS, *Catching's Compend.*

— To polish plates, coat a dry felt wheel by holding a piece of paraffin against it while revolving and apply any polishing powder desired; finish with a soft brush.—D. A. NASH, *Catching's Compend.*

— THE science of bacteriology holds a foremost place in medical science, and has a great future before it, and more attention should be given to it by the dental student than has hitherto been possible.—*Jour. Brit. D. Asso.*

— The ordinary shell crowns are positively wrong in shape and construction, because the normal crown has a larger diameter than the neck of the tooth, therefore a band to fit the crown of a tooth tightly will be too large at the neck.—L. N. SHIELDS.

— WE can prepare root canals better in one hour than we can in twenty; we have been over-treating the root-canal; we have been depending upon medicines and our theories to do a great deal that we could have done by mechanical skill and force.

—E. L. CLIFFORD.

— DR. GEO. EVANS forms a mass of gutta-percha in the shape of a small bowl, into which is dropped chloroform. The mixture is made immediately for any and all purposes it is to be used. By this method a thin or thick solution can be had at the same time.—*Catching's Compend.*

— To distinguish a living from a dead tooth we have a very simple test in ammoniacal carmine stain. A dead tooth or dead portions of the tooth, such as remnants of the pulp of the crown and the zone of dentine bordering the pulp-chamber, will never assume our carmine stain.—CARL HEITZMANN.

— To fill a root with chloro-percha or any liquid, dip the points of a pair of Dr. Flagg's dressing tweezers, while closed, into the liquid. Carry them, charged with the liquid, well up the root. If they are then carefully withdrawn, and at the same time are allowed to open, the liquid will be left in the root.—W. E. ROYCE.

— DR. MANGHAN recommends antifibrin in cases of remote pain; but it is a drug which requires care in administration, as cyanosis and urgent dyspnoea occasionally follow its action. It is best suited to pale and spare patients, and should be given in doses of two to five grains every two hours until the pain is relieved.

— WHEN a fistula from an abscess opens on the face, it is better not to extract, if extraction is necessary, until you make an artificial fistula inside the mouth. The outside fistula will heal by granulation. If, on the other hand, you extract the tooth before you do this, the tissue will be depressed, and an ugly scar result."—W. G. BEERS.

— FOR bleaching discolored teeth I have used sodium peroxid in two different ways. First, by saturating the dentine with a strong solution, following this by treatment with a dilute acid. Second, by first neutralizing the sodium peroxid with an acid and afterward saturating the dentine with this neutral solution. The first has yielded the best results.—E. C. KIRK, *Cosmos*.

— WHEN a new remedy is offered coming through proper

channels try it—if valuable, use it—but let severely alone all others. A practitioner is liable to prosecution for malpractice, who uses or permits to be used upon his patients, applications, the ingredients of which he is unacquainted with. So, according to the old German saying, “never buy a cat in a bag.”—*T. L. G. Review.*

— WE are often led to suppose that pyorrhea has not yet attacked a specified tooth, because pressure will not force an escape of pus around the neck. I am satisfied now that many such seemingly healthy individual teeth, in diseased mouths, are affected, for I have been amazed to observe the free flow of pus in such cases immediately upon the application of caustic pyrozone.—*R. OTTOLENGUI.*

— THE ideal rubber plate, for general use and practice, is undoubtedly the gold-lined plate of the Daly method, or its equivalent. In this we have all the advantages of pure gold,—and it is worth while to consider if pure gold here is not better than the ordinary 18 karat of which most swaged plates are made,—in contact with the tissues; and this lining, smooth and solid as a swaged plate, and yet as perfectly adapted to the surface as the rubber.—*J. B. HODGKIN.*

— THE use of the storage battery in furnishing power for small motors and light for examining of nasal, oral and pharyngeal cavities, and the teeth, in furnishing abundance of heat in desensitizing dentine, in drying and sterilizing a root-canal, in removing painlessly and without hemorrhage epulic and polypoid growths, in cauterizing indolent, ulcerated mucous tissue, makes a storage-battery, be it only a small one, an invaluable adjunct to the operating room.—*C. T. GRAMM.*

— LIGHTISH yellow-black tartar is deposited at the gum margin, especially on the exterior next the cheeks. This tartar disposes to caries the points where it is deposited. It is not tartar in the true acceptation of the word, but an infectious deposit, a fermentous medium, with permanent acid reaction (*Viat.*). Green tartar, which, contrary to the other kinds of tartar deposits, does not come from the salivary glands, but is produced by a parasite from the exterior—the *Leptothrix buccalis* (*ROBIN.*)

— RUBBER or celluloid gums are apt to discolor, while the rubber at best is a poor imitation of the natural gums. Plain teeth

have many advantages over gum teeth in articulation and artistic arrangement, but in many with short lips, the gum-teeth are preferable, as the porcelain is free from discoloration, and has a more natural gum color. It is not always necessary to use them for upper or lower sets in the same mouth, though less rubber is required with gum teeth, and this with added weight favors them somewhat for lower plates.—*Items.*

— CONTRACTION of the jaws has been attributed by Dr. O. W. Holmes in part to lack of use, and in part to habits of hasty feeding. On this theory, the sturdy Englishman who takes pleasure in chewing his beefsteak is likely to have an ample alveolar arch, and a full complement of teeth. But where soft foods are largely used, and the teeth are not needed in mastication, there is likely to be a deterioration in the quality of the teeth and lessening of their number.—WILLIAMS.

— If there be pain in any area supplied by the first or second division of the fifth, it may be assumed that the source of irritation, if truly dental, lay in the upper jaw; if the painful area were supplied by the third division of the fifth, the great occipital, small occipital, great auricular, or superficial cervical, then the cause may be sought in the lower jaw, and without fear of disappointment. An impacted lower wisdom would not cause pain within a nostril, nor would pain behind the ear be due to an upper carious incisor.—DR. MANGHAN.

— TOOTHACHE.—The following is recommended :

R	Creasot	-	-	-	-	-
	Tinct. menth. pip. ether	-	-	-	-	-
	Ol. camphor	-	-	-	-	gtt. ij
	Ol. caryophyll	-	-	-	-	gtt. v.
	Cocaine	-	-	-	-	grains ij. $\frac{1}{4}$
	Chloroform	-	q. s.	-	-	-
M.	Fiat pasta.	Sig.—Place in cavity.				

—*Nouveaux Remedies.*

— “I do not maintain that the clamp should be relegated into ‘inocuous desuetude,’ but I do say that extreme care should be exercised in selecting the proper ones to be used in each particular case, so that they may be easily adjusted, and that the most delicate and extreme accuracy of manipulation possible be employed while placing them upon the teeth. I know of nothing

more repellent to the average patient than the rubber dam and its accompaniments: therefore, I think it behooves us to manifest a little compassion by dispensing with the use of the clamp, or the ligature, and even the dam itself, whenever it is practicable.”
—J. A. REILLEY.

SOCIETIES.

COMMITTEE ON EXHIBITS, WORLD'S COLUMBIAN DENTAL CONGRESS.

IMPORTANT NOTICE.

THE Committee on Exhibits for the World's Columbian Dental Congress desires to obtain rare specimens of growths, abnormalities, casts, illustrations of method, instruments and appliances, both ancient and modern, whereby the growth of the profession may be shown from its early infancy up to the present time. They also desire to exhibit an ideal library, operating room and laboratory, and to this end earnestly request all members of the profession, together with dental dealers and publishers, to loan them any specimens, instruments, books, appliances, photographs or pictures of societies and eminent men, of all countries, together with anything and everything that will be of interest to any dentist from any part of the world. They will pay all transportation charges on such exhibits, to Chicago and return, and will insure the same, while on exhibition, if desired.

COMMITTEE:

CHAS. P. PRUYN, *Chairman*, 70 Dearborn St., Chicago, Ill.

ARTHUR E. MATTESON, 3700 Cottage Grove Ave., Chicago.

E. M. S. FERNANDES, 36 Washington St., Chicago.

M. L. RHEIN, 104 E. Fifty-eighth St., New York.

A. W. McCANDLESS, 1001 Masonic Temple, Chicago.

R. C. YOUNG, Anniston, Ala.

JAMES CHACE, Ocala, Fla.

W. A. CAMPBELL, Gold and Fulton Sts., Brooklyn, N. Y.

Address all communications to Dr. A. W. McCandless, Secretary, 1001 Masonic Temple, Chicago, Ill.

TO THE DENTAL PROFESSION OF THE WESTERN
CONTINENT.

THE Pan-American Medical Congress, to meet in Washington, D. C., September 5 to 8, 1893, being an assured success, the Dental Section promises to be well represented.

No other section of the Congress can claim a greater number of men of scientific attainment. In artistic and mechanical skill, in accurate and delicate manipulation, where surgery is involved, in Bacteriology and Histology, and rapid progress in its specialty, no other surpasses that of the dental profession. Able papers on the following subjects will attest the above assertion: Cleft-Palate; Hare-Lip; Orthodontia; Dental Anatomy; Histology and Pathology; New Growths of Every Character Pertaining to the Mouth and Teeth; Diseases of the Maxillary Sinus and Alveolar Processes; Periostitis; Pulpitis and their Results; Operative Dentistry; Bacteriology; Mechanical Dentistry, in addition to many other suitable topics.

This Congress, being an outgrowth of the American Medical Association, the requirements for membership in this section are identical with that of the A. M. A., viz.: Any reputable practitioner holding the title of D.D.S., or M.D.S., can become a member the same as if he possessed the M. D.

To members of our profession in our sister countries we extend a hearty invitation to visit us and participate in the meeting, either by writing papers or by being present to hear or discuss them. This is especially desirable, since the Congress belongs equally to all American countries. Many of you will, no doubt, visit the great World's Fair. This is also the year for the World's Columbian Dental Congress in Chicago. This meeting, however, in no way interferes with the P.-A. M. C., since the Columbian comes August 14th to 19th, inclusive, and the P.-A. M. C. September 5th to 8th, inclusive, in Washington, thus offering two attractions in the way of Scientific Dentistry in addition to the Great Fair. Many of the officers of one Congress are officially connected with the other.

To the Columbian you are an invited guest; at the Pan-American you are participating in an institution as much your own as ours.

To the Dental profession in the United States we would suggest that, in taking part in this, the first meeting of the P.-A. M. C., we are the hosts, and our duties as such need not be rehearsed.

The excess of Dental practitioners in the United States over our sister countries, will necessitate a careful selection of topics and papers in order to present the highest standard, the object being not numbers, but quality, of material, and ample time for discussion.

The social feature of the Congress will be no small part of the attractions.

Respectfully,

M. H. FLETCHER, K. P.,

*Executive President of the Section on Oral and Dental Surgery
of the P.-A. M. C.*

RESOLUTION OF CONDOLENCE.

The Cleveland Dental Society hereby express their sympathy to the family of Dr. Geo. Watt, of Xenia, Ohio: *Resolving* that, in the death of Dr. Watt, the dental profession has met with a severe loss. His talents were for our use, and his gifts were numerous. The inspiration of such a life will lead other men to usefulness. The memory of Dr. Watt's work will live, though he has passed to a better reward beyond this earthly existence. We honor him.

Committee—H. L. AMBLER, W. H. WHITSLAR, S. B. DEWEY.

EDGAR PARK, D.D.S.

At a meeting of the St. Louis Dental Society, held January 17th, 1893, the committee appointed to prepare a memorial and resolutions on the death of Dr. Edgar Park, formerly an active member of this Society, submitted the following report, which was adopted:

Dr. Park was born in Wainfleet, County of Welland, Ontario, April 21st, 1840. In 1856 he left home, and through the influence of his uncle, Dr. Park, of Chicago, he became deeply interested in the study of medicine, and attended a regular course at Rush Medical College. Later he adopted dentistry as his pro-

fession, entering upon a course of study at the Ohio Dental College in 1864, graduating at the Missouri Dental College in 1869.

He was associated in practice with Dr. W. W. Allport of Chicago for a short time, after which he came to St. Louis and took a position as assistant to Dr. C. W. Spaulding in 1865. In 1867 he became associated with Dr. H. J. McKellops, and remained with him until 1870, when he opened an office of his own. He soon secured a lucrative practice, and was highly esteemed socially and professionally. In 1873 he married Mary C. Fisk, daughter of General Clinton B. Fisk.

He continued the practice of his profession until March, 1884, when failing health compelled him to retire, and after an illness of eight years, died at Middleton, New York, August 12th, 1892. His wife and five children (four daughters and one son) are left to mourn the death of a devoted and affectionate husband and father.

Dr. Park was devoted to his profession, and was often heard to remark that, "If I were worth a million I would never give up the practice."

He was a devoted professional brother, interesting, sociable, kind and charitable, an active worker in the St. Louis Dental Society, always ready to do his share in whatever position he was called to act. He received the highest honors in the gift of the St. Louis Dental Society.

He was a member of the American Dental Association, and for one year Recording Secretary. Also a member of the Missouri State Dental Association. He was, at one time, a member of the Illinois Dental Society.

Dr. Park was a careful, painstaking, conscientious operator of acknowledged ability, and much of his work stands to-day as a monument to his skill.

WHEREAS, In the death of Dr. Edgar Park, our esteemed associate and active worker, the St. Louis Dental Society has lost one of its most worthy and honored members, a man of sterling professional integrity, full of generous impulses and kindly feeling; therefore be it

Resolved, That this expression of our regard and deep regret be spread upon the records of this Society, and that a copy be transmitted to the bereaved wife and family, to whom the Society tender their sincere sympathy; also

Resolved, That a copy of this Memorial and Resolutions be sent to the leading dental journals for publication.

WM. H. EAMES,	} Committee.
A. H. FULLER,	
WM. N. MORRISON,	

OUR AFTERMATH.

MRS. BUTLEY, wife of Dr. C. R. Butler, of Cleveland, died on March 1, 1893.

DR. W. P. HORTON, of Cleveland, has been spending a part of the winter in Florida.

DR. GEO. L. PAINE, who formerly practiced dentistry in Xenia, now resides in Akron, Ohio.

DR. B. W. JONES, of Troy, Ohio, was married on Wednesday, March 4th, 1893, to Miss Nora M. Lickly.

DR. JOS. HEAD has resigned his position as associate editor of the *International*, and Dr. Geo. W. Warren is elected to succeed him.

DR. E. H. RAFFENSPERGER, Marion, O., is devoting considerable attention to military affairs. He is Captain of Company G, 14th infantry, O. N. G.

DR. W. W. ALLPORT, one of the pioneers of dentistry, and a well-known dental practitioner, died at his home in Chicago March 21st, aged 69 years.

GENIAL THOMAS LONG, of the S. S. White Co., recently lectured on "The Manufacture of Artificial Teeth," to the professors and students in the Cleveland Dental Colleges.

FOR OUR READERS.—"The OHIO DENTAL JOURNAL, always instructive and interesting, starts the new year much improved in 'make up' and appearance."—W. E. BLAKENEY, *Items*.

DENTAL EXHIBITS NOT WANTED.—At the last meeting of the American Dental Association the following resolution was passed:

Resolved, That at all future meetings of this Association no dental exhibits of any kind be allowed near the place of meeting.

A DENTIST in an Ohio town tells his patients who complain of his roughness that "all good dentists are rough—they must be to be thorough." Now, dear subscriber, don't write to inform us that you are not the man—we didn't say you were. But remember that thoroughness is compatible with gentleness.

DENTAL SECTIONS IN MEDICAL CONGRESSES.—A section of odontology has now become a permanent department of International Medical Congresses, and whatever may be the character of future Dental Congresses, a section devoted to dentistry is likely to become a prominent feature of every International Medical Congress.

GUM-CHEWERS, TAKE HEED.—What shall we say of the working of that particularly ponderous power, the jaw-bone, grinding a gum-grist in school-girl's mouths to-day? Why, it would yield force enough to set the bells of the nation tolling the requiem of the brains above those jaws, poor brains that shrivel as the buzz-saw work beneath them grows more vigorous.—FRANCIS E. WILLARD.

INDIANA DENTAL JUBILEE.—Such is the name given a dental gathering held at Indianapolis on March 30th and 31st. General clinics, embracing everything in dental practice were given, and after these a reminiscence meeting held; concluding with an elaborate banquet. In our next issue we shall probably have a report of the meeting.

WE are sorry to announce that Dr. W. H. Sillito, who has had charge of the Aftermath Department of THE JOURNAL, has been obliged to give up the work on account of his large dental practice. We certainly feel like extending Dr. Sillito a vote of thanks for the efficient manner in which he has so long edited this department. While we cannot promise to keep the reader so well informed, perhaps, as Dr. S. has done on current news, yet we shall continue the department and endeavor to "pick up" matters that will be at least readable.

COME TO OUR ARMS!—The *Dental Review* says:

"Dental colleges are like individuals, careful or slovenly, just as they happen to be manned or officered. A great improvement could be made in various portions of the country if colleges were endowed."

Many colleges stand with open arms, ready to receive endowments to almost any number of hundred thousand, and will not be particular who the donors are, either; and we guarantee that all who have donations to make can be accommodated.

SEVERE, BUT TRUE.—In ignorance and carelessness dentists have begun to challenge drug clerks. The action of a tooth-extractor in Flemingsburg, Ky., who caused the death of a woman by injecting blood-poisoning matter into her gums, is a case in point. The evils in this line come from the pretense of dentists to be able to pull teeth without causing pain, and the disposition of patients to take all sorts of chances in order to escape suffering agony. People should understand that a perfect pain-deadener is seldom administered in perfect safety.—*Cin. Com. Gaz.*

EXEMPTION OF DENTISTS FROM JURY DUTY.—Wyoming seems to have been in advance in this important movement. We copy the following from a private letter received from Dr. R. J. Gardinier, of Laramie, Wyoming:

"I see by one of the late dental journals that the point is being agitated of exempting dentists from jury duty (and rightly so). Wyoming is somewhat ahead in this line, at least. In the year 1885, when our Territorial laws were in the hands of the committee to be compiled, I presented the claims of dentists for exemption so strongly and satisfactorily, that my wish was granted; so that dentists were included as exempt from jury duty."

WHY IT FAILED.—The Indiana dentists tried to get an amendment to their present dental law giving the State Board power to examine all applicants for registration, but it was defeated, 47 to 39, at the present session of the Legislature. Regarding its defeat a correspondent writes us thus: "We were defeated by the rabid howling of a back-woods numbskull who afterwards acknowledged that he had never read the statutes, but thought that we were trying to create a State Board and get up a monopoly. Such is life."

Yes, such is the life of many a man in the Legislatures of the various

States, and this is exactly the treatment you may expect from them; yet the people vote them into these responsible positions. Spot such men, and if they are again in the political race let the dentists combine and use their utmost influence to shut them out.

A WARNING.—DR. STEELE desires to warn the profession against fraud, and sends us the following:

"I desire to warn the profession against the schemes of pretended canvassers, who, by claiming to be my authorized agents, may attempt to collect money in advance, or otherwise, on orders for my 'O. K. Specialties.' These goods can only be bought through reputable dental depots, or directly from myself; and I *shall not be responsible for any orders taken by, or moneys paid to, other parties.* I do not put up any so-called 'local anæsthetic' and have never knowingly recommended, or endorsed anything of the kind. My name has never been used to defraud the profession, and if any brother should see my name used in connection with any circulars of any kind, you will confer a favor by sending a copy to my address. Very resp'y,

WM. H. STEELE, D.D.S., *Forest City, Iowa.*"

REQUIREMENTS TO PRACTICE DENTISTRY IN ILLINOIS.—If the proposed new law is passed the requirements for a license will be as follows:

SEC. 4. Any person not lawfully entitled to practice dentistry at the time when this act shall take effect, and who shall desire to practice dentistry in this State, and who is a graduate of any dental college or dental department of any school or university which exacts for graduation an attendance upon three full terms of not less than five months each, held in separate years, or who shall furnish evidence under oath of having had five years of continuous prior practice, and who shall present his or her credentials to the secretary of said board at least ten days prior to any meeting thereof, may appear before said board for examination with reference to his or her knowledge and skill in dentistry. Said applicant shall first be required to demonstrate his or her proficiency, by practical operations in operative and mechanical dentistry; and having passed eighty per cent. therein, shall thereupon be examined in the theoretical and scientific branches; and said applicant having passed a satisfactory examination therein, the board shall issue to such person a license to practice dentistry, in accordance with the provisions of this act."

COLUMBUS NEWS.—The dental ranks of our city have recently been recruited by the addition of Dr. A. O. Ross, who has opened an office on North High street, and Dr. G. A. Billow, who has located in the eastern portion of our city, on Mt. Vernon avenue. Such acquisitions are always welcome, and we bespeak for these gentlemen a pleasant and prosperous sojourn among us. —With the present goodly number of dentists (at least forty) the Capital City ought to support a local society. Won't some one start the ball?—The other day we met our old friend, Dr. James Taylor of the Queen City, who, with many other of his neighbors and fellow citizens bearded the General Assembly for some good purpose, no doubt. We may have appeared somewhat incredulous, however, but the genial Doctor gave us every assurance that his delegation had no evil designs upon the dental law.—Dr. and Mrs. W. H. Todd are off for a few weeks' sojourn in California.—Drs. Mather

& Hunt have recently moved into spacious quarters on South High street. — Dr. J. H. Warner, of Columbus, O., died after a brief illness on March 2d, 1893, aged fifty-seven years. His wife survives him. Dr. Warner graduated from the Ohio College of Dental Surgery in 1872, subsequently locating in Columbus, where he continued in practice until about four years ago, when he retired to engage in the real estate business. Dr. Warner is entitled to a large share of the credit for the clause in the anatomy law, which gives to dental colleges equal facilities with medical colleges for obtaining dissecting material furnished by the State. — Dr. Emminger and family left on the 15th of March for a month's sojourn at Hot Springs. O. A

INTERESTING NOTES FROM CHICAGO.—Illinois dentists are at present agitated over the subject of dental legislation. A bill is before the Legislature from which all the bad features of previous bills have been eliminated, and to which has been added the good features of the various bills adopted by other States. The bill is receiving the support of the leading dentists throughout the State; but some opposition is being manifested in certain quarters.

The Chicago Dental Society held its regular monthly meeting at the Commercial Hotel, Tuesday, March 7th. Interesting papers were read by Dr. D. M. Cattell, subject, "Manual Training a Necessity for the Future Dentist;" and Dr. Garrett Newkirk, subject, "Hygiene as Related to the Dentist Himself." The membership has greatly increased during the past year, new interest has been awakened, and active preparations are being made to make the meetings lively and interesting during the World's Fair.

The "Odontographic Dental Society" held its regular monthly meeting at the Commercial Hotel March 13th. The subject of "Preparation of Roots of Teeth for Crowns and Bridges" was ably treated by Dr. A. W. McCandless. Twenty-three candidates were admitted to membership. This society, although the youngest of the several Chicago societies, is one of the most active. Its membership is also the largest. The essayist at this meeting declared that the supporting teeth for crowns and bridges should always be devitalized. Open-faced crowns were strongly condemned.

The Northwestern University Dental School, as well as the Chicago Dental College, have decided to give a Practitioner's Course during the summer for the benefit of dentists who desire such a course during their attendance at the World's Columbian Exposition. The mornings will be devoted to practical instruction in the infirmary, while the afternoons will be given up for attendance at the Exposition.

The St. Louis Dental Society held an interesting Clinical meeting, March 15, 16 and 17. Twenty Clinicians were present, and demonstrated the most modern methods of dental operations. The variety of operations was pleasing. They were conducted so that all could see and hear, and every one who attended the meeting expressed himself as being not only entertained, but edified. The Clinic Committee was Dr. A. H. Fuller, J. W. Wick, and W. M. Bartlett. Dr. H. J. McKellops acted as Supervisor of Clinics. The Entertainment Committee consisted of Drs. J. B. Newly, W. N. Morrison, Henry Fisher and Emma E. Chase. Ample facilities were afforded in the rooms of the Missouri Dental College, which has only recently been completed. Too much cannot be said in regard to the adaptability of this building for college work. There is none like it in the United States. For the purposes of the

Clinic it was equally well adapted. Electric motors of various manufacture and design, were a predominating feature of the Clinic. Of new appliances there were many; notable among them were the set of dies for crown and bridge-work, designed by Dr. J. G. Hollingsworth, of Kansas City. The dies number over 200, and offer to the practitioner facilities for constructing artistic tooth forms such as he has not had heretofore. Dr. H. S. Lowry, also of Kansas City, demonstrated an interesting method for obtaining a natural tooth form for crowns.* Dr. J. G. Harper, St. Louis, demonstrated the use of lintine an antiseptic cloth, which may be obtained at any surgical instrument depot. Dr. E. B. Crane demonstrated the use of his new vulcanizer, designed to overcome shrinkage of rubber, and to obviate the necessity of screwing flasks down before placing in the vulcanizer. Dr. G. V. Black presented a new set of pluggers, with angles, designed for service with the Perry separators. The Weston motor was on exhibition, and demonstrated its applicability to alternating currents. Dr. J. A. Freeman, of Chicago, presented a new set of pluggers for filling the proximal cavities of molars and bicuspsids. Dr. C. S. Case, Chicago, exhibited regulating appliances for protrusion or retraction of either jaw, together with casts of faces and photographs showing change of expression. His method of constructing cleft palates was also demonstrated. Several bridges were constructed, which spoke well for the Clinicians who made them. Dr. C. L. Hungerford, of Kansas City, exhibited gold and porcelain crowns in his own mouth, made from counter-sunk teeth. Except for the gold bands appearing on the lingual surface, they bore a close resemblance to the natural teeth. The clinics were all good. Two Clinicians failed to keep their appointments, but altogether the clinics were a success. At the banquet given Thursday evening to the Clinicians, a general good time was indulged in. Toasts were responded to by Drs. DeCoursey Lindsley, W. N. Morrison and G. A. Bowman, of St. Louis; J. D. Patterson, H. S. Lowry, and C. L. Hungerford, of Kansas City; A. W. Harlan, W. H. Eggart, Louis Ottofy, A. E. Mattson and A. W. McCandless, of Chicago; Dr. Darby, of St. Joseph, Mo., and Dr. G. V. Black. Friday afternoon the meeting was brought to a close by means of the addresses of the Secretary of the Executive Committee of the World's Dental Congress, and by the Secretary-General of the Congress. For genuine hospitality and genial good-fellowship, the St. Louis dentists have few equals.

Dr. C. F. Snyder, located with Dr. Sylvester, of Berlin, Germany, is on his way to this country for a few months' vacation.

The various dental societies of Chicago are putting forth their best efforts to show the profession at the World's Dental Congress that they possess the true Chicago spirit and enterprise.

The dentists of Chicago have organized a "University Extension Course." They are seemingly much pleased with the work. Three lectures have been delivered by Prof. Starr, of the Chicago University, his subject being "First Steps in Human Progress." The members have named themselves the "Owen Scientific Centre," in honor of Prof. Owens, the great naturalist.

Dr. W. B. Ames, of Chicago, has placed before the profession a new cement, which he claims is equal, if not superior to, anything at present upon the market.

ANON.

*This method will be presented in THE OHIO JOURNAL next month.—ED.

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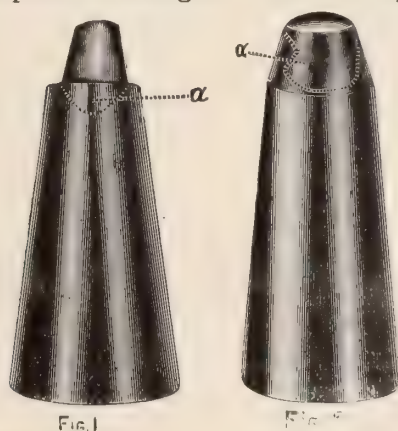
No. 5.

CONTRIBUTIONS.

A METHOD OF CONTOURING BICUSPID AND MOLAR GOLD CROWNS.*

BY H. S. LOWRY, KANSAS CITY, MO.

SELECT (for instance) a bicuspid natural tooth, perfect in form, from your collection, fasten its root firmly in a vice—saw the crown from the root at the neck. Invest the cusp surface of this crown in a batch of plaster-of-Paris, allowing all of the crown to project from the plaster except the cusps or that part that would correspond to a swaged or moulded cap (see cut No. 1).



* Demonstrated at St. Louis Dental Clinic March, 1893.

The editor and publishers are not responsible for the views of authors of papers published in the OHIO DENTAL JOURNAL, nor for any claims that may be made by them.

From this make, with the aid of moulding sand, a zinc die. A variety of these dies, consisting of upper and lower molars and bicuspidis should be had. These are to be used for contouring in the following manner:

Prepare stump of tooth in the mouth according to your accustomed plan; take measurement of same with binding wire or otherwise; from this measurement make a cylindrical gold band; then select one of the zinc dies whose circumference at the neck of tooth is equal to or a little less than measurement of root in mouth, then force the band slowly over that part of the die, representing tooth, tapping and adjusting as it is driven down. The band will take the exact form of the cast of the natural tooth. It is now ready to adjust upon the root or stump in the mouth and articulate in the usual way.

You will find this a convenient and effective method of making a gold crown. Anatomical in form, such a result can not be brought about with contouring forceps.

Another method that I have found to be of almost equal value is the following:

Place upon a semi-conical piece of wood (or other material) two inches long and five-eighths of an inch at base, a natural tooth crown by means of hard wax, as seen in cut No. 2, buccal surface of tooth upward. The fine lines in cut No. 1 marked *a* represent the part of tooth imbedded in plaster and *a* in No. 2 the part of tooth imbedded in hard wax. With zinc cast of No. 2, stamp the band before it is bent into a circle and soldered.

The buccal surface is thus contoured as nature would have it, and the remaining portion of band can be formed with pliers and fitted, articulated and finished in the usual way.

DENTAL DOTS.

BY D. V. BEACOCK, BROCKVILLE, CAN.

As Sodium Ethylate has been lately brought prominently before the dental profession, through the medium of many of our dental journals, a little information about this valuable article may not be out of place.

Sodium Ethylate ($C_2H_5.NAO$) is only of medical value as a caustic. When it comes in contact with soft tissues, owing

to the liberation of its sodium, it acts as a very speedy and powerful caustic. It should be used in alcoholic solution and applied with a glass rod. It causes very little pain, and has been extensively used by the medical profession for the destruction of naevi, since it was first brought out by Dr. Richardson, of London, England. This preparation should always be kept in glass-stoppered bottles and in a cool place, as it has been known to explode when placed in a warm situation.

Sodium Ethylate is a white powder, having a brownish tinge, and dissolves in water with a hissing sound, having the property of splitting into alcohol and caustic soda upon coming in contact with even the smallest quantity of water, or moist tissue. It is used by dentists for destroying hypertrophied gum tissues. Sodium Ethylate costs about 85 cents per ounce C. P.

Abscess evacuator improved. Instead of plugging up the mandrel-hole in the little rubber cup with gutta-percha, as suggested by Dr. Hunter, I use it with the mandrel securely fastened on, just as when in the engine. The mandrel serves as an aid to manipulate this useful device. I sometimes prefer leaving it in the hand-piece, only taking it off the slip joint. Used in this way it can be handled with the greatest ease and without soiling the fingers or touching the cup. Be sure it is air-tight.

Pasteur asserts that the human blood, in its normal state, contains no bacteria.

Bacteria acts upon animals by means of the substances which they secrete. The intensity of the chemical action is proportioned to the quantity of chemical substances produced.

A celluloid disk placed at the back of any sand-paper disk stiffens it materially and is a great improvement. I prefer them to the thin metal disk. By holding a smooth burnisher on the smooth polished surface of the celluloid when polishing a gold filling the disk can be bent and pressed into almost any uneven surface without destroying it, thus avoiding the trouble and annoyance of changing so frequently. A celluloid disk can be placed between two sand-paper disks back to back and used to advantage.

I get five cents worth of wire nails, half inch, and when the journals are read I put three of these small nails through the last one, thus tacking it on to the previous number. At the end of the year I never have to look them up. They can be bound or not, as one may choose.

Any dentist who adopts the plan of jotting down, or otherwise indexing the articles that he specially wishes to remember every month as his journals come in, will be surprised at the end of the year when he looks over his numbers how much more valuable his journal is to him than he had really expected, especially when he looks at the number of his own notes jotted down in his own handwriting. By this means he begins to feel that the journal is, really and in truth, a part and parcel of himself, and thus he is tempted to take more interest in it, and not carelessly lose any number, as is often the case.

EXHAUSTION FROM DENTAL OPERATIONS.*

BY J. R. BELL, D.D.S., CLEVELAND, O.

THAT pure air is essential to good health goes without saying.

That a vitiated atmosphere together with sedentary life is debilitating is conceded, and that this state of affairs exists in the majority of dental offices can be proven.

We should consider our own and our patient's comfort during dental operations. These operations should be so carefully performed and under such favorable conditions that the person will be unconscious of them upon being discharged, or very soon thereafter.

Most of our patients come after a hurried meal, by carriage or street car in cities, and naturally the contents of the stomach is undigested, and is calling upon the circulation for assistance. But from the hurry, worry, exaggerated imagination of what is to be endured, and the half incumbent position; the circulation is weaker, and unless precautions are taken we pave the way for irritation with its accompaniment, about the parts operated upon. The whole organism suffers through indigestion. Many times a severe cold is the result, with its unpleasant disturbances. I am convinced that it is unsafe to operate just before or during the period of menstruation, for some patients, yet I am unable to discriminate and, therefore, see no other course than to take our chances, unless there is a general systemic disturbance, adopting such means and remedies as our judgment and experience dictate. Cases are not uncommon, and not a little embarrassing, when we

* Abstract of a paper read before the Cleveland Dental Society.

find a person incapacitated after being dismissed. And it is usually charged to the operation, instead of the conditions under which it is made, and to which it is most invariably due.

I hear of physicians, through their patients, charging us with bad judgment, etc., and not unjustly. We have adopted a rule, the benefits of which are clearly demonstrated as partial preventives of such results as I have tried to point out, which is as follows: Keep the temperature in our operating rooms below rather than above 70°, and to make the patient comfortable, cover the feet and lap with a warm robe kept for the purpose. We admit plenty of fresh air, but not a direct draft upon the sitter. If the patient is damp, and chilliness is expressed, which is sometimes the case, through a debilitated condition of the system, we place a hot soap-stone under the feet; give them a few swallows of hot water, and in the majority of cases, the result is unconsciousness of self. If we discover our subject sitting rigid with the arms of the chair tightly grasped, or the hand clinched, we ask for complete relaxation without demanding it, assuring the person that they gain much power of nerve and muscle through repose. This said in an earnest, yet kindly way, together with what has already been done, diverts the mind and without loss of time, the operation is soon completed.

Tight lacing, failure to have attended to nature's wants, are delicate questions, but are, nevertheless, in the line of the way to our success, and should be corrected, if a proper way can be devised. We might, in avoiding many such duties, be justly accused of being more modest than wise.

In extensive operations, consuming two hours or more, the subject should be permitted to stand for a few moments. The change is not only refreshing to him, but ourselves as well. It is claimed by specialists that in the infinitesimal time the eye is closed in the act of winking, it is not only lubricated afresh but rested as well. If this is true, and we have no reason to doubt it, may we not easily conceive of refreshment to the whole body through a change of position, if it is only for one moment? We feel certain that acute inflammation in the pulp may be produced by friction, by the use of dry emery or sand paper strips or disks, but more especially the dry corundum wheel. Reflection on how heat applied to less susceptible portions of the body excite two or three stages of inflammation in a limited time is evi-

dence of our theory. Glycerine or hamamelis jelly may be used to advantage on disks and strips, and water, or water and alcohol, equal parts 75° F., is safe, and also acts as a slight stimulant to the soft tissues, promoting healing, by first intention, any abraded surface of the gum. It is not unreasonable for us to charge ligatures around the teeth as a cause for inflammation of the peridental membrane. The most *common cause for complaint* is in the failure to dress down fillings, sufficient to escape the occlusion of the opposing teeth, a condition we are often deceived in, at the time the filling is made; then, too, the articulation changes so that any artificial substitute, free to-day, may be found with a bright burnished spot in a week hence.

We give advice as follows, to those whom we feel are liable to suffer from operation from their own carelessness:

(1). Avoid indigestible food; eat moderately; prevent taking cold; keep the feet dry, and take a hot foot bath with a tablespoonful of mustard in the water, in case of nervousness on retiring.

(2). Return or send for us immediately in case of trouble.

The use of cathartics, counter irritation; the dose and character of which should be prescribed according to the symptoms and character of each individual case.

Pulsatilla and alcohol equal parts, given in a viol, to be rubbed on the gum over the seat of pain, is safe and effectual, in case of necessity.

THE RELATION OF THE TEETH TO DISEASES OF THE MAXILLARY SINUS.*

BY H. M. FLETCHER, M.D., D.D.S., CINCINNATI, O.

DISEASE of the maxillary sinus is not one of frequent occurrence, and when it does occur is very seldom caused by a diseased tooth.

For the purpose of establishing negative evidence in this line I have computed from my own records the statistics pertaining to the number of pulpless teeth treated in my office; but before giving these statistics I wish to make some quotations from recent authors in surgery, which seem to indicate that this trouble is

* A talk before the Ohio State Dental Society.

attributed more largely to diseased teeth than it should be. My first quotation will be from the *American System of Surgery*, edited by Drs. Keen and White, and published within the last year. In their article on this disease they say: "The most common affection of the antrum is inflammation with subsequent abscesses. This may be the result of a propagation of the inflammatory lesion from the nose, or not unfrequently of disease following up the roots of the teeth, which sometimes project a little distance into this cavity. When we remember the ease of communication from one cavity to another (meaning from the nose to the antrum) the wonder is that abscess does not occur more frequently than is the case. Not a few cases have followed attacks of the grip, in which the nasal symptoms were especially severe. The presence of polypi seems to be, sometimes, the exciting cause. The second form seems to be an extension by an alveolar periostitis, which is the result of dental caries."

It seems from this that the pathology of dental success is not thoroughly comprehended by a great many writers, for personally I have not seen nor can I readily conceive of the antrum frequently becoming diseased from an attack of periostitis or better periodontitis.

"The third form may occur from purely traumatic causes."

As to the treatment, these same authors say: "The treatment of inflammation previous to the formation of an abscess may consist in leeching, and hot applications with appropriate general measures. When pus has already accumulated, a free opening for its evacuation is essential. If the disease has extended upward from a tooth, the old method of the removal of the tooth and the perforation of the antrum at its base will be proper; but when the teeth are sound it is a pity to sacrifice one of them for this purpose, and it is preferable to perforate the antrum at the point of election, which is *above the point of the root of the second bicuspid*, about an inch above the border of the gum. The mucous membrane of the buccal fold may be incised at this point, and the thin wall of bone perforated with a trocar or delicate gouge with the exertion of very little force."

In the last edition of Bryant's Surgery, under Treatment of this Disease, we read that "Suppuration of this cavity is often due, doubtless, to the extension of inflammation from the teeth."

The facts as stated from these two works seem to give the

idea expressed by all the authors that have come under my knowledge, on the subject, and it would seem that they copy one from another on this disease, without practical observation or experience. This I deem to be a great defect in our text-books, on numbers of subjects, many men copying from previous writers or writing *for* experience, instead of *from* experience, and in this we may get our minds filled with statements which are not always founded on facts.

As another instance of lack of observation, I quote again from the *American System of Surgery*, in regard to treatment of Alveolar Abscess, or dental abscess, as I deem it should be called. On page 657 of this work we read as follows: "Abscess of the gums and jaws, or gum-boil, is a very common affection, and is due to irritation from decayed teeth. Sometimes it is quite superficial and can be cured by puncture, but at other times when connected with the diseased root of a tooth it is much deeper and is accompanied by considerable swelling of the face and severe pain. In such cases exit may be found for the pus along the surface of the root, and temporary relief be afforded."

This statement to one who is familiar with treating dental abscess seems to show a lack of thorough comprehension of the pathology of the case.

I wish now to present my own statistics as to the treatment of pulpless teeth in a sort of negative evidence, as stated, to the end that very few diseased antrums come primarily from diseased teeth. I have taken from my records statistics on this subject running back six years, and could double the number by going over the six previous years through which careful record has been kept. The statistics for the last six years show the treatment of 529 cases, and as can be seen by referring to the diagram which I hold in my hand, the upper teeth are much more liable to this trouble than those in the lower jaw—there being, in the upper jaw, 352 cases, and in the lower jaw 177 cases; thus showing a large preponderance of the upper teeth which are in proximity to the antrum of Highmore. Those from which there is a probability of having disease in this cavity are the canine, the bicuspsids, and the first and second molars. Of these teeth I have treated: on the left side 129 cases, and on the right side 98 cases, making in all 227 cases, and out of this number, or twice this number which my records would show, I have yet to see but one

case coming from a diseased tooth ; and this case, strange to say, has presented itself but recently.

The case is as follows: Mrs. C., aged 47, presented herself one month ago for the purpose of having her teeth extracted, preparatory to the insertion of a full denture. Not wishing to extract the teeth myself, I sent her away for that purpose. On presenting herself last Saturday for the examination of the mouth, she complained of pain in the right side of the face, and some soreness of the gums about the socket of the second molar tooth. A close examination showed an inflammatory condition of the mucous membrane in that locality and slight tenderness on pressure. Seeing the socket from which the tooth had been taken was still patulous I proceeded to examine with a sound. Finding the sound progressed further and further through the socket, I soon came to the knowledge that it had entered the antrum and found it was followed by the discharge of a quantity of exceedingly offensive pus. This, of course, was sufficient evidence of antral disease. We then proceeded to extract the pus to thorough cleanliness of the antrum as far as possible. In so doing, it seemed to me that there must have been a discharge of something like an ounce of pus. The history as given by the patient is that, beginning with July last, she was sick for weeks, with a disease of that side of the face and copious discharge of pus about the back teeth ; this having determined her, to some degree, to have the teeth extracted and have an artificial denture. I did not get this part of her history until she presented herself last Saturday, or the trouble with the antrum might have been discovered earlier.

The only other case of antral trouble that has come in my practice as connected with the teeth, is a boy of seventeen, of strumous diathesis, whose antral trouble was caused by undue exposure during our Cincinnati flood, in 1883, he having been in the water for a considerable length of time, removing furniture from a residence. The case involved all the teeth on the diseased side, but it seemed to show that the disease of the teeth was the result of the disease of the antrum rather than the reverse. The first upper molar tooth on the diseased side had been treated a year before for the death of the pulp, and the roots filled. This tooth partook less of the severe inflammation than any other on that side. The trouble seemed to have located and culminated,

so far as the teeth were concerned, about the root of the lateral incisors. Now, with these statistics, and those which many of you might give from your records, I believe it could be conclusively established that more teeth are diseased from trouble in the antrum than in cases where the antrum is diseased from any affection of the teeth.

As to the point of perforation of the antrum, the *American System of Surgery* states as quoted: "If not desirable to extract a molar tooth a point of election would be above the point of the root of the second bicuspid, about an inch above the border of the gum."

This would seem to be a bad place, from the fact that a perforation above the point of the root of any tooth would destroy the nerve and blood supply to the pulp of that tooth.

I hold in my hand a superior maxillary bone perforated into the antrum through the socket of the first molar tooth, and also at a point which I deem much better than above the bicuspid, which point is between the roots of the second bicuspid and the first molar tooth, thus avoiding the interference with the blood and nerve supply of any tooth, and at the same time coming nearer the floor of the antrum, thereby producing better drainage. The perforation can be made first with a small fissure drill by first dissecting the soft tissues down to the bone, then using the drill to make the opening. Through this opening an examination can be made with a sound, thereby finding how near the floor you may be, and the enlargement made in any direction desired and to any extent necessary, without in any way interfering with the future life or usefulness of any tooth in the maxillary bone. I have passed small sticks through the two perforations, so that you may plainly see where they enter the sinus. I will pass this about for your inspection.

Most works on surgery recommend the use of a trocar or gouge for this purpose, which seems to me is unnecessarily rough and primitive. To be sure, surgeons do not always have a dental engine for this work, nor is it frequently convenient for them to have one at the place and time of operation; consequently it seems to me that this operation is pre-eminently the office of a dental surgeon, for we always have the instruments at hand by which the work can be done quickly and dextrously; and there is no reason why we, as a profession, should not be prepared in

every way to treat these cases successfully. I have a case in mind in which a specialist chisselled for one hour in the canine fossa, attempting to enter the antrum. The patient was obliged to be dismissed at the end of this time, in consequence of exhaustion, and the opening had to be made at a subsequent sitting, which still required considerable additional time. With a dental engine this perforation undoubtedly could have been made in much shorter time, probably not occupying over a minute or two, or possibly less after the dissection of the soft tissue had been made, so that I urge upon you as dental surgeons the necessity of our taking up and doing this class of work, not only for the comfort of patients, but for our own benefit as practitioners and surgeons.

ALL SORTS.

Shields (L. N.) on a Method of Preventing Checking of Porcelain Faces while Soldering.—In soldering incisor teeth, the facings being thin, as is also the contoured palatal surface, borax is liable to run between them and cause them to crack. To prevent this, we take a narrow strip of pure gold and lay over the approximal surfaces, sticking the gold into the plaster at the cutting-edges and cervical ends. If teeth have been made carefully and the pure gold still extends along the approximal surfaces unbroken, it can be easily soldered with twenty-carat solder; but if in the process of finishing the pure gold has been cut through, it is safer to solder them with eighteen-carat solder.—*Extract Cosmos.*

Vance (W. W.) Suggestions Regarding a Storage Battery.—If any of you are contemplating using electricity, my advice to you is not to wait; the extra expense incurred by any change in your battery will be more than made up for, by the good you obtain by early adoption.

A few suggestions from me may not be amiss in regard to your installation; locate your battery in a convenient and sufficient light, place so as to be easy of access and inspection. Look at it every day, and always before commencing to charge; see that the active material in the plates does not fall out and accumulate at the bottom of the cells so as to touch the plates; this would cause a short circuit, and injure the plates, also diminish the power of cells. Use well-insulated copper wire of not less than No. 15 B and S gauge, and No. 12, especially if the bat-

tery is located more than twelve or fifteen feet away from your appliances at the chair; the reason for this is that the quantity of your current should not be wasted in traversing an unnecessary length of wire, or the force or voltage of the current reduced by the high resistance of small wire external to the magnet coils of your motor or mallet; this loss is reduced toward the minimum just in proportion to the increase in size of the conducting wires leading from the battery to the motor.—*Extract Review.*

Truman (Jas.) on Temporary Fillings.—I never fill temporarily on the proximal surfaces without making a compound filling. To me it is a very great error to depend upon any one material for filling in teeth of that kind. We have a possibility of acid destroying the filling at the cervical border, and that fact should always be borne in mind. The red form of gutta-percha will resist the action of micro-organisms at that point better than any other. If the walls are coated with a thin layer of tin, and then upon that you build zinc-phosphate, you have very nearly a permanent filling. I am well aware from clinical experience that zinc-phosphate will dissolve in some mouths. I prefer to place in tin as a temporary filling where it is possible to use it.—*Extract International Jour.*

Cheney (C. D.) on The Preparation of a Good Filling Material.—Gutta-percha stopping as prepared from the pure "chips" and oxid of zinc in the proportion of five of oxid to one of "chips," by weight, thoroughly incorporated at a temperature of 212 degrees, cannot be improved on. It is neither sticky, nor is it too hard; it softens at a moderate heat and, if not contaminated by dust or handling, it welds perfectly; it is non-irritant in a degree equal to any filling material, and in a higher degree than many substances and solutions which are recommended for use over bare pulps. It is incorruptible, non-absorbent, a non-conductor of all the materials used in filling teeth, and most compatible with vitality and comfort. It does not expand enough to fracture the merest shell of a tooth.—*Extract Items.*

General Remedies for Local Disturbances.—Dentists are so accustomed to depend upon topical treatment for desired results, that they are quite apt to neglect the employment of other remedies. In inflammation of the pulp of an acute character, very frequently more can be accomplished by the use of a hot foot-bath to equalize the circulation, than by all the local remedies in the pharmacopia. A saline cathartic will sometimes work wonders in local inflammations. Diaphoretics, or sudorifics, may be employed with excellent effect, and it is the same with diuretics. In cases in which an acute pain follows the filling of a

tooth, the pulp of which was in an irritable condition, a hot foot-bath of twenty minutes duration before going to bed, this to be followed by ten grains of Dover's powder, or an ounce of spirits of mindererus, will in very many cases give permanent relief.—*Dental Practitioner and Advertiser.*

Jewell (M. D.) on Chemistry for Dentists.—There is probably no profession to which chemistry comes with greater promise of assistance than to dentistry. There is hardly an operation a dentist is called upon to perform, that does not in some way enter the domain of chemistry. Mitchell has it that "many of the most perplexing problems with which the dentists have to deal, will in due time be solved by the dental chemist." This is unquestionably true, and furthermore, when the dentist takes up the study of chemistry in its application to dentistry with anything like the thoroughness which most other branches of his study are now being pursued, then, and not till then, will he possess that intelligent comprehension of the conditions he is supposed to treat, that will entitle him to recognition as a scientific man.—*Extract Dental Practitioner.*

Black (G. V.) on a Method of Widening the Arches of Young Patients.—I have one point in the widening of arches that I wish to recommend because I have such good results from it in my own practice, though I would not recommend that the endeavor to obtain it be too strongly made; that is, to put in split plates for young patients where we want to widen the arch, or put in the best anchorage you can get against the teeth, then put in a jackscrew between, and open the suture of the superior maxillary bones, carrying the incisors directly apart, and carrying the two halves of the jaw apart. There is nothing which gives me as much pleasure as to see the suture opened readily and widely. It can then be held until it is closed by a new formation of bone. I have done this in a number of instances with the happiest results. There is no movement of the teeth in the sockets. The movement is accomplished quickly and satisfactorily, but you cannot do it in every case, and should not try except with young patients.—*Extract Review.*

McMillen (G. A.) on The Use of Clasps on Rubber Plates.—The use of clasps of gold upon rubber plates when properly made, I most heartily recommend. My method is to make an impression of the tooth or teeth to be clasped, pour the impression with Mellot's or other easy flowing metal—this, when separated from the impression will give you the tooth to be clasped, in metal; over this metal die bend your clasp until it fits the largest diameter, now remove and bed or push the clasp into charcoal, or pumice and plaster about half the width, now solder a good strong lug upon this band, by laying the lug against the

band, using at least 14-carat solder, remove and place the clasp on the tooth in the mouth, see that it does not bear upon the gums—remove and flow a little hard wax—a little resin added to beeswax will make it—on the inside of the clasp and while warm place it over the tooth, be sure it is placed and held where you want it to remain in the plate, *upon this point your success or failure depends, the clasp must remain immovable when the impression is being taken*, now you are ready for the impression. I take it in plaster alone, many use stiff wax first, cut out around the clasp, fill with plaster and reinsert, I prefer plaster alone, this method applies to all parts of the mouth. It is simply incredible what this method will occasionally do, especially on lower plates.—*Extract Review.*

A Practical Hint.—Properly to treat pulp canals requires that the saliva should be kept out of them, and this is sometimes very difficult when the cavity of decay occurs above the gum line. In such instances it is impossible to so adjust the rubber dam that moisture will not creep in. These troublesome cases have caused to many much trouble and annoyance.

When the cavity is dried thoroughly—and it will require some time and patience to do this—warm a piece of gutta-percha of suitable size, and pack it into the bottom of the cavity until it fills the whole to a point above the line of the gum margin. Apply the rubber dam as soon as it is cold, and with a hot instrument remove that part which fills the pulp chamber and obstructs the entrance to the canal. It will require care to do this without disturbing the rest of the filling, but it can be done if the instrument is used hot.

This will form an effectual barrier against the intrusion of saliva when the rubber dam is in place. The gutta-percha is to be left in position until the treatment is done. If it is necessary to put in more gutta-percha to seal up the cavity during the periods between visits, adherence to the gutta-percha barrier is prevented by anointing the latter with vaseline.—*Practitioner and Advertiser.*

Phillips (A. S.) on the Construction of Rubber Bridges.—Proceed as in the gold bridge. I will take for example the four upper incisors. I make what is known as the window crown for the two cuspids. To these I solder a platinum barbed bar from one crown to the other. It is now ready for fitting on. I use plain or gum teeth as may be demanded. Articulate and try in the mouth, and if all right take the impression of it in position, after which make a cast of it, and you will find the work as it was in the mouth. Now flask as for a rubber plate, scald out all wax, pack in rubber and vulcanize. Take out and polish and cement on, as in a gold bridge.

There is nothing in the construction of the work now except rubber is used instead of solder and the gold, and its advantages over the gold bridge are these :

First. It can be made much cheaper.

Second. You avoid all liability of checking the teeth.

Third. You use such teeth as are used in rubber plates, and gold is not exposed to view.

Fourth.—Should a tooth break it is easily repaired.—*Extract Items.*

Gallie (D. M.) on the Treatment of the First Permanent Molars.—With the certainty of changing the expression of the face, the position of the teeth in the arch, and the loss of masticating surface by the early extraction of these teeth, and the uncertainty of having the spaces filled and proper articulation by leaving them in until about the time of the eruption of the second molar, leads me to believe that we should save every first molar in mouths where there is room for it, and where it has not decayed beyond repair either by filling or crowning. If strong enough to fill, cut away well all frail walls, and build up as much grinding surface as tooth will permit. If such a filling will save the tooth until after the eruption of the second molar, and then shows signs of failure, we still have good roots for the artificial crown.—*Extract Review.*

Neal (W. H.) on Dental Societies.—There is a vast power invested in a dental society, and for that reason the brains of the profession should be found in it. No petty jealousies, political methods or personal resentments. These have caused the death of several societies, which should now have been in successful and beneficial operation. With a society on the right track, and in conjunction with others of like calibre, many needed revolutions in the dental world can be accomplished, laws promulgated and carried through various legislatures, a standard raised that would leave no loop-hole for the entrance of charlatans, and if the grade is not reached by those who are already within the borders of the profession, it would put an effectual stop to their nefarious work.

In close connection to the dental societies are the conventions to which are sent, as delegates, the representative members of each local society, where new ideas in the shape of treatments, designs, inventions and investigations are discussed and examined.

These conventions should be the “shining stars” to which the dentists can turn for light and wisdom, and out of which the greatest culture and highest professional bearing should emanate.—*Office and Laboratory.*

Peirce (C. N.) on a Case of Neuralgia Cured by Removal of a Tumor Containing Four Teeth.—There have been some ques-

tions in the journals in regard to the influence of abnormal conditions of the teeth in neuralgia and other disturbances. Some months ago a lady who had been present at one of my lectures on the influence of the teeth on facial neuralgia, came to see me. She had worn an artificial denture for eight years. Upon examination of her mouth, I found on the left side a large tumor, for the accommodation of which the plate had been cut away. On passing a lance into the mass, an enamel surface was at once detected. On a free incision, opening it for the introduction of a pair of forceps beaks, an ordinary three-cusped, compressed-rooted third molar was readily removed. On further examination other teeth were recognized, which, upon removal with the forceps, proved to be three additional, supernumerary in character, united with apparently a membrane of connective tissue. On placing the four teeth together in the same relative position they had occupied in the cyst, the upper and larger one, the representative of the third normal molar, had been imbedded with its crown towards the cheek. The next in size was closely adapted to a depression in the larger one, and at a slight angle to its vertical axis. The third in size was, in similar manner fitted into a depression of the second in size, and in the same line deviating from its vertical axis; while the fourth in size, not much over a sixteenth of an inch in length, or rather between a sixteenth and an eighth, fitted into a well-marked cavity in the third or preceding in size and description. The crowns of these teeth all possessed multiple cusps; the largest one had, as above stated, the three cusps of an ordinary third molar, while the second in size had quite a pronounced central cusp encroaching upon a proximal surface, with three cusps on the other proximal side and one on each side of the more central cusp. The third tooth in size had four rounded cusps, with a deep sulci in the center of the crown. The fourth and smallest of the group resembled more an inferior bicuspid, with the cusp on one side much more prominent than that on the other, both cusps, however, being divided by slight sulci. The point of most interest to the patient was that in the removal of these abnormal growths, the suffering, which had been severe and of long duration, was entirely relieved.—*Extract International.*

Thomas (J. D.) Treatment after Extraction of Teeth.—When the bone has been distended and strained, as is unavoidable in many of these cases, actual osteitis will result, and the inflammation is accompanied with pain more severe than the original toothache; and I wish to direct attention to what is, in my experience, the best method for its speedy relief. Antiseptic and astringent lotions are generally recommended as after-treatment in extraction, on the ground that the original cause of the trouble being removed, stimulating and astringent washes will facili-

tate nature's efforts to heal the wound, when in reality a greater cause remains in the strained and bruised bone which surrounded the tooth, and any effort to abort the progressive course of the inflammation by means of antiseptic treatment will only result in more and prolonged suffering. I always recommend the application of hot water as soon as practicable after the operation. Should inflammation ensue sufficiently to produce pus, the more speedily it is accomplished the better; and should such not be the case, the hot application will act like magic in easing the pain, relieving the congestion, thereby diffusing the induration and rapidly establish the normal circulation through the parts.

In malposed wisdom-teeth the effect of extraction is, if anything, more severe, for the reason that they grow from solid bone with no alveolar process about them. From the proximity of their position to the angle of the jaw, the soft tissues of the throat are apt to become involved, sometimes accompanied by swelling, which if left to itself would form an abscess most serious to control. I have never met a case that did not readily yield to the hot fomentation, with the addition of a compress of cold water or Pond's Extract to the outside thereby drawing and driving the accumulating pus into the socket. As soon as that is accomplished, relief is certain; and if the cavity is kept clear of the accumulation of putrescent matter, by syringing with warm water or the use of hydrogen peroxid and the application of antiseptic dressings, recovery will be speedy.

In cases of periostitis and alveolar abscess, the conditions imperatively demand this treatment, and in my judgment it is the proper course to pursue after extraction. Alveolar abscess is invariably followed, to some extent, by necrosis, which may require weeks to get rid of. Beside the necessary precautions as to cleanliness of the cavity and the antiseptic treatment, the daily application of a ten- or fifteen-grain solution of the zinc sulfate is required until the sequestrum is removed or absorption takes place.—*Extract Cosmos.*

Hoff (N. S.) on Local Anesthesia.—Cocaine alone is best used in a two per cent. solution in local anæsthesia. The addition of carbolic acid to the distilled water, helps to render the solution antiseptic and also limits the absorption of the cocaine into the general circulation, thereby localizing its action. If higher per centage solutions are used, some agents which will counteract the paralyzing effect of the cocaine on the heart and respiration should be added. The most effective agent of this kind is the sulphate of atropine. This is a valuable addition to the formula not only for its antagonistic effect but it also increases the local effect by paralyzing the nerve endings in the tissues involved.

In order therefore to construct a formula which will meet the de-

mands of anæsthesia and be safe to use, four elements at least are necessary, viz: the basis, the adjuvant, the corrective, the diluent. And as an illustration we will compound the following formula making a two per cent solution of cocaine.

R	Cocaine Hydrehlorate,	gr. x
	Sulphate of Atropine,	gr. 1-10
	Carbolic acid, 95 per cent solution,	gtts viij
	Distilled Water	℥j

Dissolve carbolic acid and atropine in the water and to every twenty-five drops add one-half grain of cocaine. When wanted for use, other drugs may be added to this formula to increase or intensify the effect of the cocaine, but in my judgment chloral, camphor and aconite which are usually employed do not materially increase the power of the formula, while it is quite certain that they do cause an excessive irritation that is somewhat difficult to control. Chloral is especially apt to cause this irritation, and in some cases it will produce excessive swelling or even sloughing of the gums. To increase the power of the formula I should prefer rather to increase the amount of cocaine up to a three or four per cent. solution. The amount of this formula that can be safely used at one time can be determined by remembering that one half grain of cocaine is a safe dose for a hypodermic injection and that $\frac{1}{200}$ to $\frac{1}{60}$ of a grain of atropine can be safely injected. And since the atropine and cocaine neutralize each other in their physiological actions, a dose of each given at the same time must be safe. The carbolic acid in the quantity indicated is not at all dangerous and consequently we would be justified in using hypodermically twenty-five drops of the above solution. But practically it will not generally be necessary to use more than ten or fifteen drops, unless a great many teeth are to be extracted. This formula is selected only as a basis or a study as it were, but it will be found useful in its present form. It is hoped, however, that this subject will be investigated both clinically and scientifically.—*Extract Dental Register.*

Shields (N. T. & L. N.) on the Construction of a Bridge where there is a Close Bite.—Perhaps the simplest expression of the bridge is the one constructed of solid gold. Where the bite is close, there is nothing that acts so well for strength and cleanliness as a bridge of this character.

We will take, for illustration, the lower jaw, as we seldom make them for the upper. Having prepared the individual solid-gold crowns previously described, place them in position on the roots and take an impression of the whole jaw. Place the crowns in their matrices in the impression and stay them to place with wax. Pour the model with plas-

ter and marble-dust. You now have the crowns firmly held in position. Take also an impression of the upper jaw, place the models together, and you will have an exact articulation. Next make the grinding-surface stamps for the teeth to serve as dummies, and fill in these with twenty-two carat solder. From a piece of No. 60 tin foil cut a pattern for a pure gold floor. Place this gold far enough away from the gum to allow for convenient cleansing. This gold floor should exactly fit the space between the abutments of the bridge. Also have enough thickness between this floor and the superior teeth for strength. Stay the floor with hard wax to the crowns to be used as abutments, flowing the wax above and below the floor at its attachments to them. Now place the grinding-surface stamps in position, getting the proper articulation by raising them and filling in with wax. Wax up accurately to form, and place a strip of pure gold along either the buccal or the lingual surface. Do not fail to have the stamps cut with projecting edges on the buccal and lingual surfaces for the purpose of staying them in the plaster investment, which will prevent their falling. Also leave the edge of the floor somewhat exposed, *so that it will not rise when soldered*. The gold strip which was placed on either the lingual or buccal surface, as the case may be, answers a valuable purpose if nicely adjusted, not only to make the gold flow into all parts, but to hold the floor and stamps exactly in position.

The adjustment of this strip depends upon the side chosen for the soldering. It is to be applied to the buccal side if the soldering is done lingually, or *vice versa*. Now cut the plaster away, except that which holds the bridge. Make a ring, and invest in plaster and marble-dust. Roughen the plaster model and soak it in water before investing any further, to secure a firm attachment of the investment added to the model. Next wash out the wax with boiling water and dry thoroughly. As the crowns are soldered with twenty-carat solder, the entire space between the crown stamps and the floor must be soldered with eighteen carat. The solder flows into the position occupied by the wax which was placed above and below the pure gold floor in staying it to the abutments, and it will finish like the inside of a watch-case. The bridge here described will give permanent service and be altogether comfortable. We use this method where the bite is close and where porcelain facings would be neither necessary nor expedient.—*Extract Cosmos*.

Van Vleck (C. K.) on A Method of Saving Old Molars when they are too far gone for the Ordinary Crown.—We are often called upon to save a grinder when it is not only badly decayed, but one root is partially exposed, and a decayed spot on that. We cannot fill it and make a nice piece of work of it, neither can we take a gold crown and slip it on in such a way as to get a perfect fit about and under

the exposed portion of said root; yet we must save it, for it is a tooth our patient cannot afford to lose.

Meeting a difficulty of this kind one day, I solved it in the following manner. The tooth in question was a second superior molar, with the palatal root exposed for more than half its length. I could run my probe in under the crown far enough to touch the labial root. This tooth was so badly decayed that filling was out of the question, and yet quite firm in the socket. Now, who could make a crown that would not leave an overhanging edge after it was brought to its place? A perfect fit and union of the gum-margin could not be accomplished with a crown made first and set afterward, so we built the crown on the tooth and after it was completed it was a success.

In the first place, the tooth was shaped and prepared in the usual manner for setting any other collar crown. Then a piece of platinum, 28 or 30 standard gauge, was used to make a band, and on this depends the success of the operation. This band should be made to fit perfectly the gingival border, and be soldered with pure gold, and when soldering allowed to run around the inside of the band to make a very thin lining. This can be done by subjecting the whole piece to a very intense heat. The gold serves the purpose of making a better union with the amalgam we are to use later. The band is now put back on the tooth to make sure that it touches all around the gum-margin. At the gum-margin the platinum should be dressed very thin and polished. We then mix the amalgam, putting all the mercury in the mortar than we intend to use, and mixing the amalgam very thin,—about like a thick paste. Then with a spatula we spread this thin amalgam around the inside of the band at the edge nearest the gum.

The amalgam left in the mortar is now thickened by the addition of alloy to quite a dry condition. The tooth is now dried, the band placed in position, and the edge burnished well up around the roots. Here we can bring the platinum well up under the irregular parts of the root, and the thin amalgam will make a perfect joint. After this is done, we can fill up the band with the dryer amalgam, which will take up the excess of mercury from the thinner, and uniting with the gold on the inside of the band, we have a solid mass that only needs trimming and polishing to make it the most enduring crown that I know of. It will save some of the old landmarks that we have looked at most of our professional life.

I have used this crown for about one year, and have yet to learn of a failure. The getting of the articulation is little or no trouble, and after a little practice the operation can be performed in less than half the time that any other crown can be made.—*Cosmos*.

Dickinson (W. P.) on Conservative Treatment of the Dental Pulp.—As a preliminary in the capping of pulps the rubber dam must be brought into requisition as soon as the extent of the destruction can be ascertained and the form of the cavity defined; after the cavity is once freed from the mixed fluids of the mouth, they must not be permitted to again enter it—this is an absolute necessity to secure the best results. The disintegrated matter should now be carefully removed, and a few drops of a dehydrating and antiseptic fluid placed in it for a few moments. A most useful form of this is composed of absolute alcohol and chloroform to which is added ol. cassia and ol. menthae in small quantity.

This will not usually cause pain, but when it does, will be only transient, being caused by the difference in temperature of the tooth and application. After being in the cavity a short time, what remains should be absorbed with surgeon's cotton or bibulous paper—never with spunk and the cavity thoroughly dried with a warm air syringe, taking care not to raise the temperature of the blast too high. A paste compound of the best oxide of zinc and iodoform, with sufficient of cassia to disguise the odor, is mixed with eugenol and wood creosote to the consistency of putty, forms the pulp protector, this is placed in proper position with care and in deep-seated cavities a layer of oxyphosphate of zinc can be flowed over it and the work completed as soon as it is set.

The only difference, in the way of manipulation, in capping an exposed pulp, is that the dehydrating fluid must only be used to lightly swab out the cavity, the greatest care in the use of the warm air current, and mixing the paste thinner and placing it in position without the least pressure.

Except in cases of capping pulps exposed in excavations, I usually fill the cavity with oxyphosphate and leave it in this condition sufficiently long to prove the success or failure of the operation. Oftentimes this remains in for several months.

The capping material, in time, attains a degree of hardness about equal to chalk, such as is obtained for blackboard use, it is not a cement as we usually apply the term, and will not withstand the action of the fluids of the mouth—it is always advisable to flow a thin layer of oxyphosphate over it when practicable, to expedite the work. I do have failures occasionally, but I believe they are mostly due to the fact that the successes make me over-confident, and thus possibly cause me to take unwarranted risks; this is also the experience of others who are pursuing the course of treatment I have outlined.—*Extract Review.*

Davenport (W. S.) on the Use of Twisted Wire for Regulating Teeth.—The case in question was a protruding upper jaw. The

teeth articulated well with the lowers as far forward as the first bicuspid and the lower arch in the bicuspid region, was broad enough to conform to, and permit the teeth to articulate with those of the upper jaw. An appliance was made, consisting of a rubber plate, which covered the upper back teeth. Into the right side of the plate was vulcanized one end of half-round platinum wire, which was passed around in front of the incisors and terminated at a loop in the free end. Two little hooks were soldered to the front of the band in such a way as to catch over the ends of the centrals when the plate was in the mouth, and prevent the wire slipping up against the gums. Into the left side of the plate a staple was vulcanized.

When the plate was in position a copper wire was passed through both the loop and staple, and had its ends brought together and twisted, this producing pressure upon the centrals, laterals and cuspids.

From time to time another twist was given to the copper wire, until at the end of seven weeks, the teeth were in the desired position.

A retaining fixture was then placed, consisting of a strip of pure gold, No. 5 to 6 Stubbs, and French gauge, so bent and soldered as to form a loop at each end.

Having previously separated the teeth with linen tapes, the looped strips were covered inside with thick chlora-percha and passed around the anchor-teeth, allowing the loops to be on the outer sides.

Copper wire was passed through these loops, and the ends of the wire were brought together and twisted until the pure gold bands were perfectly swedged to the convexity of the crowns, forcing the superfluous chlora-percha out at all points and making an accurate fit. (These bands did not move until taken off four months later.)

Copper wires were fastened to the loops left in the band at the buccal surfaces of the teeth, and brought around the front teeth from both sides and twisted together at the centrals. This drew the six front teeth to their exact places. The twisted ends were then bent over the cutting-edges of the centrals, to protect the gums from the wire. All rough places on the sides were then covered with gutta-percha.

The patient was instructed to remove the plate while eating, and by so doing a very good articulating of the finish was secured.

Positive and intermittent force is secured by such a use of twisted wires as above indicated. The principle involved is that of the inclined plane, which is also the principle made use of in the screw.

Appliances dependent upon twisted wire for the application of force are easily made and applied, and possess many obvious advantages over the screw in very many cases. Wire of silver, galvanized iron, or copper, owing to their pliability, strength, and cheapness, will be found very satisfactory.—*Abstract International.*

Hollænder (L.) on the Use of Pental as an Anæsthetic.—

Since I have been using pental, one year, and made about nine hundred narcoses, I can sum up and communicate my experience in the following brief sentences:

Of course my assertions refer only to minor operations, as I have never performed major surgical operations with the material.

1. Pental is an effectual anæsthetic in all cases, and for that reason differs greatly from ethyl bromid, which in some cases is ineffectual.

2. Anesthesia is induced more slowly than with ethyl bromid, but lasts longer, and the patients only regain consciousness gradually.

3. The least excitement is extraordinarily rare. As yet I have, regarding the following results, not observed any irritation of the stomach nausea and vomiting, much less trembling, trismus, aphasia, etc.

4. Neither the heart's action nor inhalation is quickened during the administration; however, the pulse at times, especially in anemic individuals, is somewhat weaker, whereas, in very excited people, it is slightly accelerated.

5. Generally two or three c. cm. are sufficient for anesthesia in composed people. Ten c. cm. are adequate in most cases for the extraction of five to ten teeth.

6. Very excitable and strongly anemic patients, with a weak heart-action and an old bronchial catarrh, do not endure pental as well as healthy ones.

7. The best manner of administration is that with the Junker apparatus, the advantages being that the admission of the vapors into the lungs can be regulated, and that they are prevented from entering the eyes; also that less is used, and the disagreeable odor for some people is not so noticeable. Professor v. Mering is at present trying through experiments to weaken the too quick effect of pental, and also to mask the disagreeable odor by the admixture of another preparation.

8. Anesthesia takes place in from one to three minutes.

Notwithstanding all these advantages of pental, I do not wish to assert that it may or can be administered less observantly than any other narcotic. All clothing about the neck, chest and abdomen must be loosened, and the respiration continually watched by a physician or trained assistant. The dentist or surgeon cannot operate and at the same time, during the operation, observe dangerous symptoms.

Without doubt, at times unpleasant as well as dangerous symptoms may occur through the use of pental, as well as with all other narcotics; but whether occasioned by pental, peculiar dispositions of patients, or lack of precaution on the part of the physician, and how the same may be avoided, can only be decided by observation and experience of different workers.

Pental is at present, on account of its sure effect and the wonderfully comfortable feeling of patients after anesthesia, the best narcotic for all operations of short duration.—*Extract Cosmos.*

Evans (Geo.) on Some Things Useful in Dentistry.—I have used a celluloid sheet, instead of a towel or cloth for the top of my table and my bracket. It is absolutely clean, is wiped off without the slightest difficulty, and it seems to meet all the requirements for a covering of that kind. The greatest objection to it is that if you happen to let a match fall upon it, it will burn very rapidly. It will warp a little if the sun shines upon it, but practically it has no serious objection, and I would not be without it. It is cheap and economical, and a sheet will last two or three years. If you let sulphate of iron or iodine fall upon it, it will, of course, stain; but for neatness and cleanliness I know of nothing that is its equal. I think enough to cover a bracket would cost about sixty or seventy cents. It comes by the yard or by the sheet, in all sizes, shapes and colors. You can get it at the Celluloid Company in Newark.

—The next little appliance is a pair of pincers for soldering. You take the ordinary pincers and hold a piece of gold over a Bunsen burner, and, unless you are very quick, your fingers will get very hot and you must drop it. I had a pair of pincers made with each of the points set in a little box of asbestos. I find it very valuable and satisfactory. You can leave it in the burner as long as you please, and the heat will not affect it; it is good thing in the office and in the laboratory.

—About two weeks ago I had an accident, and it set me to thinking, and I determined I would not have the same happen again in my practice. About two years ago I exposed a pulp, capped it, protected it, and, as the crown was decayed, I put a Richmond crown on. The tooth broke about a month ago, and, in my haste in getting the root ready, I chipped out the little piece of oxyphosphate that I had placed over my capping, and re-exposed the pulp. If I had referred to my book I would have noticed at once that the pulp had been capped, and yet there was not the slightest indication about the tooth that it had been done; it seemed to me that some method ought to be adopted by which we could tell the condition of things. There is no better way than by having the material itself tell the story. In other words, I would have my gutta-percha or oxyphosphate, whatever used, a bright red color. If that were generally practised, no dentist would ever commit the piece of folly that I did, of heedlessly re-exposing a pulp that had once been exposed by cutting away the cover.

—A year or two I commenced practising with diamond powder for a variety of purposes. A little diamond powder goes a good way. I use a very little of it mixed with Hindostan powder, and find it very effect-

ive. I use it with a copper point, or take an old burr, heat and soften it, and take off the burr part so I have simply a rounded part, dip it in oil of cloves or oil of wintergreen and use it, and it is astonishing how rapidly it works, and what a bright, clean surface it gives. It is cheaper than you think, because you mix it with the other powder, and that saves it to a great extent, and it saves time enough to make the value of the diamond dust a very small matter. The ordinary Hindostan powder will scratch, but the S. S. White Company, at my suggestion, have made two or three grades by precipitation, and the finer ones will cut and polish without scratching. Believe me, it is a matter of no small moment to finish off a filling or roughened tooth-surface without scratching. I believe these different grades of Hindostan powder are the best powders in the market for dental use.—*Extract International.*

EDITOR'S NOTES.

“BOIL IT DOWN.”

At a recent meeting of the Chicago Dental Society, the essayist made an apology for the brevity of his paper. In the discussion another member said—“Brevity is the very last thing that I would think of making an apology for, for I believe the man who uses the fewest words usually advances the most ideas, and I regard the present paper as no exception.”

A little more care taken in cutting out superfluous words would make many a paper more valuable. Papers are often tiresome to listen to, although they may contain many new and valuable suggestions; tiresome because they are overburdened with language that could have been profitably eliminated without affecting the article, but for the better. We do not mean that anyone should restrict his ideas; no, present as many as desired, but “weed out” the superfluous words.

The ten minute paper has recently become a marked feature of the New York Academy of Medicine. The result, says the *N. Y. Med. Journal*, has been a marked increase in the attendance at the meetings, a large number of concise, pithy, and interesting papers, and a wide publication of the proceedings. The instructions to writers of papers formulated by the chairman, Dr. Northrup, contained a number of apt suggestions and were somewhat as follows: 1. Hippocrates and Galen may be passed

with very slight notice, as they have been for some time dead and their opinions are somewhat obsolete. 2. Scratch out the formal introduction and begin where the subject matter really begins. 3. Condense the body of the paper. 4. End the paper where the subject matter ends, making its action like that of the piston syringe—begin, spatter, stop. As a result of this policy the papers have been unusually practical and to the point.

This applies with equal force to the dental profession and should no societies adopt this rule, we hope our readers will bear it in mind when preparing society papers; we feel sure that the effort will be appreciated.

The following terse poem, by Dr. W. E. Ward, appeared in a recent issue of the *Jour. of Amer. Med. Association*, and is so fitting that we reproduce it.

“ Just a word to those good doctors,
 Who are meditating deep,
 On a paper they're preparing,
 Full of thoughts too good to keep—
 Boil it down.

’Tis not words, but facts we’re wanting;
 Therefore prune and pare with pains
 Your scholastic evolution
 Till an essence pure remains—
 Boil it down.

Welcome every fresh advancement,
 Hail, each new discovered fact,
 But in writing a description
 That attention will attract—
 Boil it down.

And remember that discussions
 Are of interest all agree;
 So your paper should invite it;
 Make it short as well may be—
 Boil it down.”

“WHERE IGNORANCE IS BLISS,” ETC.

A MEDICAL exchange recently contained an article on Extraction of Teeth, Filling, etc., written by an M. D., and urging his medical brethren to “try it.” After describing his instruments and methods of extraction, he says:

“It will do but little good to fill a tooth of which a third is

decayed, or one that is dead. An inflamed pulp or ulcerated fang should at once be drawn out.

I keep on hand some amalgam, cement, and dental rubber. Then with an assortment of drills, burrs, spoon excavators and nerve brooches (?), I can fill a tooth. I use arsenical paste for a sensitive pulp. With a barbed brooch I draw out an exposed nerve. When I find a small hole in an otherwise serviceable molar or bicuspid I plug it with amalgam: if large and sensitive, I use cement or rubber (?), also the same for front teeth. I never attempt to fill a dead tooth, or one that has been aching for some time.

I care nothing for any sneers, as I have been at this method of filling for two years, and *it pays*. When my temporary filling comes out, or all soreness is gone, I can put in a permanent filling or send to a dentist. It takes but a short time, costs but little, pays big profit, and is cash."

And this is dentistry in *his* estimation. It suggests the thought that better dental legislation *is needed* in some of our States, and we hope to see the efforts of our dentists, to obtain such legislation, crowned with success.

NEW PUBLICATIONS.

A PRACTICAL TREATISE ON CROWN- AND BRIDGE-WORK—By Geo. Evans, Lecturer on Crown- and Bridge-Work in the Baltimore College of Dental Surgery. Third edition, revised and enlarged. Philadelphia: The S. S. White Dental Mfg. Co., Publishers, 1893. Price, cloth, \$3.50.

Crown- and Bridge-Work has become a fixture in dentistry and yet there are hundreds of dentists who have little or no idea of its proper construction. Others, perhaps, have one method and apply this in all cases; when in some of these another method might be preferable. Many methods are described in the book before us and affords an opportunity for a proper selection for the case in hand.

Judgment, however, is indispensable to the dentist in the construction of this, as well as in various other operations about the teeth. For instance, every tooth or root will not serve as an abutment for a bridge. Judgment of the dentist must be exer-

cised to determine what teeth will be serviceable thus utilized. On page 158 the author states that "one right and one left molar, with the assistance of the two cuspids, will support a bridge comprising the whole arch." To make a serviceable bridge these would have to have a very firm attachment, and have perfectly healthy surroundings. We doubt, even with these, if this is advisable for an upper denture; it is throwing too much strain on a few teeth, for permanency. Failures from attempting too large bridges with insufficient anchorage, and applying bridges to unsuitable teeth, has been the cause of the cry that "bridge work is a failure." But bridge work is not to be thus put down. Small bridges properly constructed and applied in suitable cases, are serviceable and far preferable to any other artificial substitute.

Common sense judgment together with the instructions, illustrations and descriptions given in this treatise on crown- and bridge-work, will enable the operator to make this work a success. The book should be in the library of every dental practitioner.

HISTORY OF THE LIFE OF D. HAYES AGNEW, M.D., LL.D.—By J. Howe Adams, M.D. With fourteen full page portraits and other illustrations. In one Royal Octavo volume, 376 pages, Extra Cloth, beveled edges, \$2.50 net; Half-Morocco, gilt top, \$3.50. *Sold only by Subscription.* Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

The life of Dr. Agnew as given in this book is in itself an interesting study; to follow through the fortunes and misfortunes of this man, to watch his untiring efforts to advance in the specialty he had chosen, how success gradually crowned his efforts until at last he stood one of the world's greatest surgeons. The author says: "It was not alone his achievements which bore the stamp of originality, which heralded his name on the wings of the wind and made it a tower of strength which we have endeavored to depict; but there were other charms of social and personal life which have made his memory fragrant in the minds of his friends. In endeavoring thus to show his life and its effect upon the American world, these lesser points have been included as far as possible." In the writing of this book the style and treatment have been modeled, as far as possible, upon Dr. Agnew's own idea of propriety and methods of thought, and altogether forms a most interesting sketch.

THE INTERNATIONAL MEDICAL ANNUAL and Practitioner's Index for 1893. Edited by a corps of thirty-eight department editors—European and American—specialists in their several departments. P. W. Williams, M.D. Secretary of Staff. 626 octavo pages. Illustrated. \$2.75. E. B. Treat, Publisher, 5 Cooper Union, New York.

The eleventh yearly issue of this valuable one-volume reference work deserves and perpetuates the reputation which its predecessors have made, for selection of material, accuracy of statement and great usefulness. Numerous illustrations—many of which are in colors—make the "Annual" more than ever welcome to the profession, as providing, at a reasonable outlay, the handiest and best resume of medical progress yet offered.

The arrangement of the work is alphabetical, and with its complete index, makes it a valuable reference book.

In short, the "Annual" is a recapitulation of the year's progress in medicine, serving to keep the practitioner abreast of the times with reference to the medical literature of the world.

MODERN GYNECOLOGY, a treatise on Diseases of Women, by C. H. Bushong, M.D., New York; E. B. Treat, Publisher, 1893; Cloth, price \$2.75.

This is one of the popular medical *Classic Series* issued by this reliable publisher. The work is designed to fill a place in progressive medicine, and because of its need is here; not as an encyclopedia or manual covering the whole subject, but as a treatise on the *practice of to-day*; what to do and how to do it in the department which it covers. It comprises the results of the latest investigations and treatment in this branch of medical science. No effort has been spared to make the volume complete and comprehensive.

PSYCHOPATHIA SEXUALIS. A Medico-Legal Study. By Dr. von Krafft-Ebing. Authorized translation of the seventh, enlarged and revised, German edition. By Charles Gilbert Chaddock, M.D. In one Royal Octavo volume. Cloth, \$3.00 net; Sheep, \$4.00 net. *Sold only by Subscription.* Philadelphia: The F. A. Davis Company, Publishers, 1914 and 1916 Cherry Street.

This treatise is intended for investigators in the domain of natural science and jurisprudence. The author hopes his attempt to present to the physician and jurist facts from an important sphere of life will receive kindly acceptance and fill an actual hiatus in literature.

VEST POCKET APPOINTMENT BOOK.—We acknowledge the receipt of a very neat and convenient appointment book, designed and published by W. H. Steele, Forest City, Ia. It is so arranged that an appointment can be made in full, giving year, date, day, hour, etc., without writing a word except patient's name.

The cover is of Russia leather and filler removable, so that it can be replaced by a new one at a nominal cost. The price of the book is 50 cents.

BRIEFS.

— DR. S. G. PERRY believes that erosion is due to an excess of uric acid in the blood.

— Sympathy is a good thing, and no dentist should be without it, but it must sometimes go masked.—J. SHEPHERD.

— DR. F. A. GREEN boils impression trays in sal-soda water after using modelling compound. This cleans them thoroughly.

— DR. GEORGE ALLAN uses celluloid dissolved in alcohol and ether as a root canal filling. He states that it has given much satisfaction.

— ACCORDING to the statements of Dr. Brubaker, lactic acid dissolves cement fillings very rapidly, while acetic acid has little or no effect upon them.

— A two per cent. solution of sodium ethylate painted on the blunted gum septum every other day will reduce its thickness in about eight days.—*Review*.

— I never saw a case of erosion that there was not that peculiar, nervous condition of the patient that is the forerunner of an organic disease.—J. B. LITTIG.

— MR. WALLIS, of London, has devised an apparatus for heating water by electricity. A 50-candle power current will heat a pint of water from freezing to 212°.

— IN soldering tubes or nuts to receive screws to their attachment, chuck the end of your lead pencil in the holes and solder will be kept out.—*Western Journal*.

— IF it is desirable to introduce silver nitrate into a root canal, heat a platinum wire and the crystals will adhere to it and may be carried anywhere.—A. M. HOLMES.

— IF the temporary teeth are carefully filled and protected until the proper time for their removal, it will very much benefit the condition of the second teeth.—W. HEADRIDGE.

— FOR reducing the heat of the flame of a spirit-lamp introduce a piece of platina wire through the wick, so that it will not melt the edges of gold foil when placed in the flame.—G. BRUNTON.

— WE have accomplished but half our mission when we can skilfully perform an operation, the other half is to be able to manage our patients, and that can only be done by tact.—JAS. SHEPHERD.

— AFTER taking a plaster-of-Paris impression, brush it over with soapstone before pouring. An old worn-out toothbrush is the best. I also coat the model and the opposite with the same before packing.—Dr. RELYEA, *Dom. Jour*.

— DR. GEORGE ALLAN depends on alcohol for the completion of the drying process of root canals; by its strong affinity for water it will run into the roots, work its way up, and displace the moisture. Absolute alcohol is preferable.

— WE naturally feel that teeth are important organs, and we endeavor to save as many of them as possible; yet I believe from the bottom of my heart that we often urge our patients to retain teeth which are the cause of much discomfort, if not actual pain to them.—E. T. DARBY.

— WE believe that students should be taught first the use of hand instruments, and kept from the engine until they have mastered their use; that our profession and our patients suffer unless this has been done. Let the colleges commence the good work.—*Extract Ed. Western Journal*.

— If you have occasion to file the crown part (cusp part) of a gold crown or other small piece of metal, try setting it, by heating it into a piece of sealing wax, allowing the crown to get cold,

then file to the desired shape. When you want to remove it from the wax, also heat it.—G. A. McMILLEN.

— IN fitting crowns, if a post is used, make the post with a maximum thickness of a pin so that only a minimum quantity of cement will be needed. So with the cap or butt which is aligned with the stump of the root, fit closely so that you do not depend upon the cement for strength.—*Western Journal*.

— I think if we are always careful to have the rubber dam in place and see that the canal is kept flooded with some powerful antiseptic while the cleaning process is going on, at the same time using proper care to prevent penetration beyond the foramen, we will very seldom have to combat after-complications.—C. H. STEARNS.

— BEFORE introducing the syringe needle into the gums, it should be dipped into a strong solution of carbolic acid, then washed in a 5 per cent. solution of the same, which should not be wiped off, but if a drop remains on the point when it touches the gum it will paralyze the tissue so that the needle will not hurt when inserted.—N. S. HOFF.

— SLIP a rubber tip, such as is used on the little glass drop tubes, over point or face of your small rivetting hammer, tie it fast with a piece of wire twisted round; you can hammer away at a plaster model without defacing it, when fitting in an air chamber pattern or any piece of gold, or other metal, to the model.—D. V. BEACOCK, *Dom. Jour.*

— A domestic while taking a drink of water swallowed a false tooth, which had been held in position by a metal plate. All efforts to extract the tooth failed, and the woman died of hemorrhage a few days later. At the autopsy it was found that the plate had caused a perforation of the esophagus just above the entrance to the stomach.—*Western Journal*.

— IF steel is frequently heated it loses part of its carbon and becomes practically wrought iron. To regenerate or rather recarburize it, the following method is given in *Invention*: Add to three parts, by weight, of pure resin, melted in a crucible and slowly but continuously agitated, two parts of boiled linseed oil, care being taken that the mixture shall not burn. This forms a brown but viscous mass, and into this the metal must be plunged at red heat.

— I have noticed that when a jet of heated air is directed on a filling of oxyphosphate which is undergoing the process of crystallization, the resulting mass becomes friable, with a tendency to granulate, owing to the increased rapidity brought about by the high temperature. It would seem better, therefore, to use a current of cold air or that of ordinary room temperature upon such fillings rather than a hot blast.—H. G. REGISTER.

— THE use of the lancet is a necessity in some cases of eruption of children's teeth, for instance, when we find the gums badly inflamed and tumid, parts engorged with thick, black blood, in such a case an incision into the gums will give relief; but usually, if the parent is instructed how to care for and nurse the child at this period, there will be little need for the wholesale use of the lance.—D. M. GALLIE.

— I am of the opinion that not a few have lost confidence in pulp-capping, because forsooth they have had failures. The keeping of systematic records is a matter which is far too much neglected among us. I feel assured that if we could have a tabulated statement of cases, with methods employed, many of them empirical and very unscientific, with the percentage of successes and failures, it would be encouraging rather than the reverse.—W. P. DICKINSON.

— I think possibly red gutta-percha is not affected by micro-organic life, while I am convinced white gutta-percha is. It decomposes on the surface with considerable rapidity. The red is, I believe, colored with vermilion: that may have a retarding influence in the development of micro-organisms. I know of no other reason, because they are practically the same. We all know that red gutta-percha will remain intact in cavities for almost an indefinite period.—JAS. TRUMAN, *Inter*.

— RECORDS show, says Dr. P. W. Moriarty, that one in twenty of surgical operations performed for congenital cleft palate, are successful as an operation, but we never see a case where the speech has been made perfect. In fact, the more successful the operation, the greater the injury to the patient, owing to the increased difficulty of mechanical treatment.

The causes of the failure of surgery to improve the speech is that even if the tensor palati muscles are not divided in operating, the palate after an operation is not of sufficient length to close the opening between the cavities of the mouth and nose.

A TRIBUTE TO THE MEMORY OF DR. WATT.

THE members of the faculty of the Ohio College of Dental Surgery have learned with deep sorrow of the death of Dr. George Watt. Dr. Watt had filled with unexampled ability the chair of chemistry in this institution in its earlier years, and in that position received the well earned credit of being the distinguished pioneer of dental chemistry, linking thus in undissoluble bonds the youthful profession of his choice to that science, which, above all others, has given with unstinted hand the most generous and useful donations to the treasury of nascent dentistry.

It was not, however, in chemistry alone that Dr. Watt's eminence as a teacher was recognized. Those of us who attended his lectures in this college during the session of 1867-68 on pathology and therapeutics remember with admiration his lucid, sharply defined analysis of the obstruse questions belonging to these subjects. And while those who knew him could not but acknowledge his overmastering intellectuality, those who knew him best were those who loved him most.

In this spirit we lovingly offer this tribute to his memory and extend to his afflicted family our deepest sympathy.

OBITUARY.

W. W. ALLPORT.

DR. WALTER WEBB ALLPORT was born at Lorain, Jefferson County, N. Y., in June, 1824. He was of English descent, and Sir James Allport, one of the greatest railroad men in England, and Dean Allport were his cousins. In 1844 he entered the office of Prof. Amasa Trowbridge at Watertown to study medicine. In 1846 he determined to devote his attention to dentistry, and in 1853 entered the New York Dental College in the double capacity of student and demonstrator. He graduated from that institution in 1853, removed to Chicago in 1854, and has practiced his profession there ever since. He married Miss Sarah Maria Haddock at Watertown in 1847. Dr. Allport's beginning in Chicago was a modest one. A room 7 by 8 feet in size on Lake street furnished ample accommodations for him and a phy-

sician. Dr. Allport occupied one corner of the room. His operating case consisted of a board nailed across the angle and covered with a newspaper, and his chair he had rented from a barber. His earnings for the first two months were \$20 and \$39 respectively. A few years ago he discovered an old lady in one of whose teeth was the first filling that he made in this humble office, showing that from the first he had been a skillful operator.

In 1858 Dr. Allport was elected president of the Western Dental Society; in 1860 he was elected the first chairman of the American Dental Association; in 1865 he was elected president of the American Dental convention, and in 1886 he was elected president of the American Dental Association. In 1881 Rush Medical College conferred on him the honorary degree of M. D., and for many years he was emeritus professor of dental surgery in that institution and in the Chicago Dental College. He was the means of creating the dental section in the Ninth International Medical Congress which met in Washington in 1887, and was made vice-president of the section. He was one of the organizers of the Chicago Microscopical Society and for a long while its president. He was largely instrumental in the organization of the American Dental Association. He was also the editor for two years of the *People's Dental Journal*.

Dr. Allport was an accepted authority upon all subjects connected with dentistry, to which he devoted special attention, and he enjoyed the honor of having been the first dentist in the world to take advantage of the cohesive properties of gold for the purpose of restoring the front teeth to their original form when large portions have been lost by decay. This interesting fact is established by the report of a society meeting published in the New York *Dental Recorder* in 1856.

Dr. Allport was a man of venerable and distinguished appearance, with a commanding figure, a noble head, and features expressive of intelligence, precision, honesty and courage. He was pleasing and affable in manner, easily approached by young men, always ready to learn, and with an unfailing charitable instinct. But no man was harder to impose upon, and when he scented crookedness he became excessively belligerent. Like all positive characters he had devoted friends and unforgiving enemies, but both alike respected his integrity and his independence. He was a member of Grace Episcopal Church and was once a

Mason, but he belonged to no club and no secret order. He always found his delight in his own home with his large and interesting family.

RESOLUTIONS OF THE CHICAGO DENTAL CLUB IN MEMORY OF DR. W. W. ALLPORT.

WHEREAS, in view of the loss we have sustained by the decease of our friend and associate, Dr. W. W. Allport, and of the still greater loss sustained by those who were nearest and dearest to him; therefore, be it

Resolved, that Dr. Allport was a man of good principles, lofty in his ideas, conscientious in his dealings, strong in his purpose for right, and far sighted in the requirements of the profession, and that it is but a just tribute to the memory of the departed to say that, expressing our regret for his removal, we, the members of the Chicago Club, mourn for one who was in all respects entitled to the regard and admiration of everyone with whom he came in contact;

Resolved, that we sincerely condole with the family of the deceased on the dispensation with which it has pleased Divine Providence to afflict them, and commend them for consolation to Him who orders all things for the best and whose chastisements are administered in mercy;

Resolved, that this heartfelt testimonial of our sympathy and sorrow be forwarded to the family of our departed friend.

L. P. HASKELL,

E. S. TALBOT,

C. N. JOHNSON,

Committee.

RESOLUTIONS OF THE CLEVELAND DENTAL SOCIETY.

WHEREAS, It has pleased an allwise Providence to visit upon one of our most respected members, Dr. C. R. Butler a sad affliction by removing his beloved wife, therefore be it

Resolved, That in this hour of bereavement we deeply sympathize with himself and relatives in the great and irreparable loss which they are called upon to sustain.

Resolved, That these resolutions be spread upon the minutes and a copy be forwarded to Dr. Butler by the secretary.

H. L. AMBLER,
S. B. DEWEY,
W. H. WHISTLAR,
Committee.

SOCIETIES.

THE INDIANA COLUMBIAN DENTAL JUBILEE.

THIS meeting was held at Indianapolis March 30 and 31 and was a success from both a clinical and a financial standpoint. Representatives from all parts of the state met in the Indiana Dental College at 10 a. m. The infirmary was well filled with patients and each clinician had ample material from which to select a suitable case.

Promptly at 2 p. m. the clinics were started. Thursday afternoon and Friday morning and afternoon were occupied with the regular program of clinics and a number of volunteer operations by Dr. T. S. Hacker and others.

The interest was divided and well sustained for two days. Dr. Hacker, as manager of the clinics, won much commendation for his labors on behalf of the visiting operators.

Thursday night a mass meeting of the visiting and resident dentists was held at Y. M. C. A. Hall. At 8 o'clock Dr. S. B. Brown, of Fort Wayne, President of the Indiana Dental College, announced that the college had been invited to hold their informal commencement exercises in connection with the jubilee meeting.

After a short address from President Brown to the three graduates and the under graduates, Dr. Cravens presented the diplomas and certificates in behalf of the college.

Dr. Brown then announced the purpose of the jubilee meeting and called on Dr. Jonathan Taft, of Cincinnati, for a talk about the World's Columbian Dental Congress. Dr. Taft was followed by Dr. Louis Ottofy, of Chicago, and Dr. H. A. Smith, of Cincinnati, who each presented different phases of the World's Congress for consideration.

Dr. G. E. Hunt, of Indianapolis, spoke briefly for the desires of the conference committee for Indiana.

A general discussion, largely reminiscent in character, was then indulged in.

It is the intention of the conference committee to publish a volume containing histories of the State Dental Association, State Board of Dental Examiners, Indiana Dental College, the early history of dentistry in Indiana, biographies of the most prominent dentists of the state, and reports of the clinics held at this meeting and the reminiscences recounted. Subscriptions to this volume, at \$5.00 each, were solicited and liberally responded to. The excess above the amount necessary to cover expenses will be forwarded to the general finance committee of the World's Columbian Dental Congress.

Friday night the visitors were the guests of the Indiana Dental College. Music, punch, coffee and cakes served to help pass an enjoyable, social evening.

The Indiana Dental College Alumni Association met at 2 p. m. Thursday, March 30, in the lecture hall of the college. Officers were elected as follows: President, R. T. Oliver, of Indianapolis; Vice-President, Maurice Raschy, of Indianapolis; Secretary-Treasurer, G. E. Hunt, of Indianapolis.

Following is the clinic program of the jubilee meeting: Dr. E. V. Burt, LaFayette, Ind., Method of filling root canals; Dr. S. T. Kirk, Kokomo, Ind., Preparation of enamel margins. Filling cavities with non-cohesive gold; Dr. George E. Johnson, Fort Wayne, Ind., Exhibition of original cervical clamp; Dr. J. J. Steadman, La Porte, Ind., Patent retaining springs for artificial teeth; Dr. S. E. Harryman, Lawrenceburg, Ind., Exhibition of aluminum crowns; Dr. R. W. VanValzah, Terre Haute, Ind., The J. H. Morrison seamless crown method; Dr. M. H. Chappell, Aseptic preparation of cavities. Filling teeth with plastic materials; Dr. J. R. Clayton, Shelbyville, Ind., Character of demonstration not announced; Dr. G. B. Martin, Indianapolis, Solid cast bridge-work. Box crowns; Dr. E. E. Reese, Indianapolis, Exhibition of La Pierre system of anæsthesia—Painless preparation of cavities for filling; Dr. W. S. Rawls, Indianapolis, Cleaning teeth; Dr. Merit Wells, Indianapolis, Cohesive gold filling, without retaining points; Prof. J. N. Hurty, Indianapolis. Chemical experiments in the mouth. Testing saliva, amalgams, etc.; Dr. R. T. Oliver, Indianapolis, Exhibition of some cases in oral surgery.

COLUMBIA DENTAL CLUB, CHICAGO.

THE Dentists of Chicago have organized the Columbia Dental Club, for the entertainment of Dentists visiting Chicago during the continuance of the Exposition. They have rented the entire house at 300 Michigan Avenue (about four squares from the Art Palace on the lake front), and it will be kept open daily for the convenience of Dentists.

The club will be used as headquarters for the *World's Columbian Dental Congress*, during the month of August and perhaps after July 15, 1893. Dentists who contemplate a visit to Chicago may have their letters addressed in care of the club. Members of the profession in Michigan, Illinois, Wisconsin, Iowa, Missouri and Kentucky, are invited to send pictures, bric-a-brac and curios to embellish the rooms; everything of value will be returned to the owners after the Exposition closes. The profession in Illinois will furnish the club house, and those who contribute fifteen dollars (\$15.00) will be entitled to a full paid, non-assessable membership for the six months. On behalf of the organizers.

A. W. HARLAN, *Secretary General*,
World's Columbian Dental Congress.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

SPECIAL NOTICE.

To the Officers of Dental Societies in the United States and Foreign Countries.

GENTLEMEN:—The Committees on Membership and Registration of the World's Columbian Dental Congress will be saved much trouble and the applicants for membership much vexation if the members of dental societies in good standing are furnished with credentials or certificates of membership, so that they may be presented at the desk where intending members apply for their membership cards.

Advanced membership cards will be furnished on application to the Secretary of the Gen'l Executive Committee, or the Secretary General of the Congress when the membership fee (\$10.00) accompanies the application.

A. O. HUNT, *Sec'y of the Gen'l Executive Com.*,
A. W. HARLAN, *Sec'y Gen'l of the Congress*, Iowa City, Iowa.
No. 1000 Masonic Temple, Chicago, Ill.

CHICAGO DENTAL SOCIETY.

AT the annual meeting of the Chicago Dental Society, held Tuesday evening, April 4th, 1893, the follow officers were elected for the ensuing year: J. W. Wassall, *President*; J. H. Woolly, *First Vice President*; Garrett Newkirk, *Second Vice President*; L. L. Davis, *Recording Secretary*; Geo. J. Dennis, *Corresponding Secretary*; E. D. Swain, *Treasurer*; J. H. Smyser, *Librarian*.

Board of Directors.—Edmund Noyes, J. G. Reid, Geo. H. Cushing.

Board of Censors.—E. R. E. Carpenter, D. C. Bacon, H. W. Sale.
GEO. J. DENNIS, *Recording Sec'y*.

TO THE MEMBERS OF THE SEVENTH DISTRICT
DENTAL SOCIETY OF OHIO:

AFTER due consultation with the Executive Committee, and also with a number of the members, it was deemed wise to postpone our regular annual meeting, which was to take place here the 3d Tuesday in May, for one year.

This conclusion was reached on account of the more important meetings during the summer, in consequence of which it was impossible to make a satisfactory programme.

Camden, O., March 25, 1893. B. F. JOHNSON, *President*.

WESTERN DENTAL COLLEGE OF KANSAS CITY, MO.

THE commencement exercises were held Tuesday evening, March 7th, 1893. Graduates 6. Matriculates 93.

H. H. DENTAL COLLEGE, CLEVELAND, O.

COMMENCEMENT exercises held Tuesday evening, March 21st, 1893. Graduates 2.

VERMONT STATE DENTAL SOCIETY.

THE 17th annual meeting of the Vermont State Dental Society was held at the "Welden," St. Alban's, Vt., March 15-17,

1893. The following were elected officers for the ensuing year: President, Dr. A. J. Parker; First Vice-President, W. H. Wright; Second Vice-President, E. O. Blanchard; Treasurer, W. H. Mumsell; Secretary, T. Mound; Executive Committee, G. O. Webster, C. W. Staples, F. P. Mathers; State Prosecutor, Dr. G. W. Hoffman.

Dr. G. Lenox Curtis, of New York, and Dr. J. H. Collins, of Granville, N. Y., were made honorary members of the society.

Next meeting to be held at White River Junction, the third Wednesday in March, 1894.

THOS. MOUND, *Secretary*.

RUTLAND, VT.

ILLINOIS STATE DENTAL SOCIETY AND IOWA STATE DENTAL SOCIETY—JOINT MEETING.

The twenty-ninth annual meeting of the Illinois State Dental Society will be held at Rock Island, May 9-12, inclusive. The thirtieth annual meeting of the Iowa State Dental Society will be held at Davenport, May 9-12, inclusive. These cities are located on opposite sides of the Mississippi river and arrangements will be made to hold the meeting jointly, so that those in attendance of the meeting of either society will have an opportunity to listen to the papers, take part in the discussions and witness the clinics of both societies. No efforts will be spared to make this union meeting one of the most interesting in the history of each society. Members of both societies are urgently requested to attend. All dentists are cordially invited to be present. Every one should bring models, specimens, appliances or anything that may be of interest to the profession.

LOUIS OTTOFY,

Secretary Illinois State Dental Society, Chicago.

W. O. KULP,

Chairman Executive Com. Iowa State Dental Soc., Davenport, Ia.

DENTAL DEPARTMENT UNIVERSITY OF MARYLAND.

ANNUAL commencement was held Thursday, March 16, 1893.

Reading of Mandamus by the Dean, Prof. J. S. Gorgas, M.D., D.D.S.

Conferring of Degrees, by Hon. S. Teacle Wallis, LL. D.

Address to the graduates, by Rev. E. L. Watson.

Number of graduates 16. Number of Matriculates 108.

OHIO COLLEGE OF DENTAL SURGERY.

THE forty-seventh annual commencement was held Wednesday, March 15, 1893.

D. W. Clancey, M.D., D.D.S., made the address and conferred the degrees on 15 candidates.

Dr. Dudley W. Rhoades made the customary address.

Prof. H. A. Smith awarded the prizes as follows:

SENIOR PRIZEMEN.

1. Gold prize for the best general examination, to David E. Sheehan, Jr., of Ohio.
2. Gold Medal, for best attainments in operative dentistry, to Max J. H. Martin, of Germany.
3. Gold Medal, for the best attainments in prosthetic dentistry, to James C. Van Kirk, of Jefferson, Pa.

JUNIOR PRIZEMEN.

1. A Silver Medal, awarded by Prof. Cassidy, for the best junior examination in chemistry and materia medica, to Mr. G. B. Saxton, of Kansas.
2. A Silver Medal, awarded by Prof. Wright, for the best junior examination in physiology and general pathology, to Mr. W. C. Elfritz, of Ohio.
3. A Silver Medal, awarded by Prof. Knight, for the best junior examination in anatomy and oral surgery, to Mr. L. P. Vandervoort, of Ohio.
4. A Silver Medal, awarded by Prof. Molyneaux, for the best junior examination in prosthetic dentistry and metallurgy, to Mr. E. G. Barnett, of Ohio.
5. A Silver Medal, awarded by Prof. Smith, for the best junior examination in operative dentistry and special pathology, to Mr. T. I. Way, of Ohio.

Graduates 15. Matriculates 121.

ALABAMA DENTAL COLLEGE.

THE commencement exercises of the Alabama College of Dental Surgery, Bridgeport, Ala., were held Feb. 24, 1893.

Degrees of "D.D.S." were conferred by Chas. A. Holmes, President of Board of Trustees, upon three candidates, who had completed the third term.

Gold medals were awarded as follows:

Founder's Medal,—Best general average, A. Irene Yokum.

Best single filling, Sanford W. Allen.

Best examination,—Anatomy and Physiology — A. Irene Yokum.

Addresses were made by W. K. Spiller, Dean; Rev. W. A. Cook; T. M. Allen, D.D.S., and the President of the Board Chas. A. Holmes.

Matriculates for the year 15.

MICHIGAN STATE DENTAL SOCIETY.

THE annual meeting of the above society, to have been held at Ann Arbor in June, has been postponed until June, 1894.

J. WARD HOUSE, *Sec'y.*

GRADUATING exercises of the Kansas City Dental College were held at the Coates House on Friday evening, March 3, 1893. Four graduates received the degree of D.D.S.

The Faculty address was delivered by Prof. Charles H. Lester and the degrees conferred by C. B. Hewitt, D.D.S., president of the faculty.

J. D. PATTERSON, *Secretary.*

OUR AFTERMATH.

REMEMBER the Northern Ohio Dental Society meeting at Akron, May 9, 10 and 11.

DR. H. McMILL says: I welcome the day when more of our dentists will see it to their advantage to take as a specialty that line of work that is most suited to their tastes, make a particular study of it, know all there is in it, fit and train themselves for it, in short make a success of it, instead of bungling

away at everything that comes along, grasping everything for fear some one else will get something to do, and as a result make a success of nothing.

COMPARATIVE TENACITY OF METALS. —The weight which can be supported by wires of a uniform diameter of 0.787 of an English line without fracture, are as follows: Iron, 549:250 lbs., Copper, 302:278 lbs.; Platinum, 274:320 lbs.; Silver, 187:137 lbs.; Gold, 150:654 lbs.; Zinc, 109:540 lbs.; Tin, 34:630 lbs.; Lead, 27:621 lbs.—GUYTON MORVEAU.

REORGANIZED.—The trustees of the Dental Department of the Cincinnati College of Medicine and Surgery have appointed Dr. J. R. Callahan, M. H. Fletcher and O. N. Heise to succeed Drs. Junkerman, McLean and Buxbaum. The dental department will be thoroughly reorganized and put on the highest plane possible. The trustees could have made no better selection and with Dr. J. R. Callahan as Dean, there will, in the future, be no cause to question the standing of this college.

A WARNING.—I desire to warn the profession, through your JOURNAL, against a young rascal who is traveling about the country selling a so-called anæsthetic mixture—"Dorsenia." He is representing that I am a stockholder in the concern manufacturing the preparation, and that I heartily recommend the preparation. I am *not* a stockholder in any concern, know nothing about Dorsenia, and have never recommended it. This agent is a swindler and liar of the first water. Yours, etc.,

J. W. WICK, *St. Louis, Mo.*

THE MEMORY IN EDUCATION. In the practical, as in the theoretical life, the man whose acquisitions stick is the man who is always achieving and advancing, while his neighbors, spending most of their time in relearning what they once knew and have forgotten, simply hold their own. Any example of your quarto or folio editions of mankind must needs have amazing retentiveness of the purely physiological sort. Men without this retentiveness may excel in the quality of their work at this point or at that, but will never do such mighty sums of it, or be influential contemporaneously on such a scale.—PROF. WM. JAMES.

WHICH IS YOUR RIGHT HAND?—A well-known anatomist once told me that I could not tell him which was my right hand. I immediately held out my right hand, but he objected. He said he did not say that I could not show or extend my right hand, but I could not tell him which was my right hand—that is that I could not describe it in words, so that one who had never heard of the distinction we make between the right and the left hands, would be able to find it. I thought that that would be easy enough, also, until I took time to think the matter over; then I gave it up, for on the outside of the human body there is nothing to distinguish the right hand from the left. No man can describe it in words so that a person ignorant of our customs would be able to locate it.—*Anon.*

JAPANESE DENTISTRY.—While Mr. Hubbard was minister to Japan, I visited that country and spent a pleasant week with him. One day I was troubled with the toothache, and Mr. Hubbard took me to a dentist and explained to the saddle-colored operator that I wanted the grinder extracted. I was placed in a bamboo chair and tilted slightly back. The dentist examined

my teeth, talking volubly meanwhile to Uncle Sam's representative. Suddenly his thumb and fore-finger closed on the troublesome tooth, and before I had the faintest idea of what was going to happen, he lifted it out and held it up before me, smiling at the same time that vacant smile peculiar to the children of the Orient. "You were waiting for the forceps, were you?" said Minister Hubbard with a laugh. "They don't use 'em here."—*St. Louis Globe-Democrat*.

"MUCHAS GRACIAS."—The editor of this JOURNAL is under greater obligations than he can readily express to Dr. H. W. Howe, of the City of Mexico (formerly of Kansas), for something which he will value above gold. It is an excellently well preserved skull of one of the ancient Toltecs of Mexico. The type is analagous to that of the Mound Builders—dolicho-cephalic—but is proportionally better developed in the cerebral region. Although it is that of an adult, the cranial capacity is exceedingly small. The dental development is magnificent. Among the skulls in our collection there was not one that was distinctively Toltec or Aztec, and Dr. Howe has shown his devotion to his profession by securing this and sending it where it would be appreciated.—*Dental Prac. and Adv.*

THE TEETH IN THE DETECTION OF CRIMINALS. A meerschaum cigar-holder was picked up near the body of a French country banker who had been murdered after the clerks had left the establishment. It was partly mashed, but the amber mouth-piece was intact. The detective sat down to study this cigar-holder. The amber bore two holes, and it was evident that they had been worn away by the smoker's teeth. One was much deeper than the other. These two indentations did not adapt themselves to the teeth of the victim. The cigar-holder, probably broken in the struggle, therefore belonged to the murderer.

During his investigation the Paris detective had to consult with the banker's cousin, one of the heirs, who was pushing the inquest. He had been to the bank that afternoon, but, of course, no one suspected him. The detective observed that this man's left incisor was longer than the tooth next to it. He asked the gentleman to put the amber in his mouth. The man turned pale and refused with disdain to do anything of the sort. He was forced to undergo the ordeal, and the two teeth fitted exactly into the two holes. The murderer was caught, for he confessed the crime.

DENTISTRY is undoubtedly the most useful and the most reputed of the departments of specialized surgery, says the *Medical Press*. The idea that the care of the teeth might safely be confided to the extractive mercies of the family medical attendant has long since been exploded, and of late years people of the middle classes of society have more and more availed themselves of the services of the skilled dentist. As a nation we are still far behind our trans-Atlantic cousins in the amount of attention and care bestowed on the beautification and conservation of the teeth, but year by year the prophylactic value of the dentist's skill is becoming more widely appreciated. At the last meeting of the Board of Management it was decided to appoint a paid dentist to attend to the teeth of the children in the Hanwell Parochial schools, and few persons will be disposed to find fault with an inno-

vation so conducive to comfort and health. There still survives an impression that a dentist is a luxury, but it is not so long since that the importance of attending to the eyesight of school children has come to be generally recognized. The dentist will probably do more to procure relief from suffering and to promote health than even the optician, and we can not but applaud the new departure.—*St. Louis Med. and Surg. Journal.*

MODERN SCIENTIFIC LANGUAGE.—The march of medicine has been so rapid in late years, says *la Revue des Sciences Médicales*, that a physician who has not read during the past ten years could not even understand what is written, such as the following examples:

Cytodieresis is effected in epithelial tumors, either by direct division, or by karyokinesis and the process does not materially differ from the type which is common to all cells. There are observed, in direct cell division, the chromatic elements, the achromatic filaments, and the polar corpuscles with their centrosomata. Whereas, in normal epithelial coverings, the orientations of cytodieresis remains constant, the plan of cellular division being generally parallel to the generative layer; in malignant epithelial tumors, on the contrary, the orientation of cytodieresis is always more or less modified.

Again: Asymmetrical mitoses have been observed in carcinoma. By fixing the elements with the aid of Flemming's solution, and staining with the analine-safranin solution, Kruse has found hypochromatic mitoses existing in the same preparation with hyperchromatic mitoses; nuclear fasciculi with aberrant chromosomata, and multipolar hyperchromatic mitoses.

And, after this, some say that a knowledge of Greek is unnecessary to the progressive and scientific physician!

"JOB-LOT DOCTORING."—The recent organization in Cincinnati of the American Family Physician Company, guaranteeing medical attendance and medicines at a stipulated rate per year, stirred up the Cincinnati Academy of Medicine, several of its members, among them Drs. D. D. Bramble and B. M. Ricketts, being under contract to the company. The Committee on Ethics, after investigating the matter, reported at the meeting of January 9, that to their minds the business relations between the members of the Academy and the company were strictly personal, and did not concern the Academy. That, furthermore, the said company was a legitimate concern, and that any man of medicine has a right to enter its service, and were sustained by vote of the Academy. This committee is composed of Doctors A. G. Drury, A. B. Thrasher, and W. H. Wenning. At the meeting of January 23, the subject again came up for discussion. In the meantime Dr. Bramble had severed his connection with the company, but Dr. Ricketts concluded to make a fight. After a lengthy discussion, a resolution was passed declaring it impossible to remain an ethical member of the Academy of Medicine and to become an employe of the American Family Physician Company. Dr. Ricketts has since the meeting, left the company, but is going to carry the fight into the American Medical Association.

A SUBSTITUTE FOR RUBBER.—In a late number of the *Manufacturers' Record* of Baltimore, is a letter from C. B. Warrand, a chemist, of Savannah, stating that there is in operation in that city a manufactory of crude rubber from

cotton-seed oil. The product so closely resembles the natural product that it deceives experts and is now produced in a commercial way and shipped to Boston, where it is used in the manufacture of various articles in every-day use. The process, which is secret, is very simple, and only requires 15 per cent. of the true rubber to produce an article that will in time prove to be an economical substitute for the South American tree gum. A Boston manufacturer furnished the capital needed to erect the plant, which is a very plain affair surrounded by a board fence. The process is known to the inventor alone, as it is not probable that the few ignorant negro assistants can fathom his secret. As cotton-seed oil costs only about \$100 a ton, and crude rubber sells for \$2,000, there seems to be a pretty fair margin of profit for those interested. Mr. Warrant, who is authority for the story, is a well-known citizen of Savannah and a writer on industrial topics. It is not probable that he is attempting to hoax the people of the South, and, if he is not, the discovery is of incalculable benefit to that section of the United States.

BUREAU OF INFORMATION AND SERVICE ESTABLISHED.—At a meeting of the Joint Committee of the Chicago Medical Profession on World's Fair Entertainment, held at the Sherman House, November, 1892, the establishment of a Bureau of Information and Service was delegated with approval and endorsement to Chas. Truax, Greene & Co., the committee reserving to itself the duty of such social entertainment of visiting physicians, during the continuance of the Exposition, as may seem desirable.

This action was confirmed at the final meeting of the Joint Committee, February 25, 1893, and on the application of the Practitioners' Club and the South Side Medical Club, the matter of social entertainment was delegated to them, with full authority to act in the capacity of entertaining bodies, with the retention of the chairman and its American and foreign secretaries already appointed. Chairman, Dr. Chas. Warrington Earle; American Secretaries, Dr. Archibald Church, Dr. Geo. Henry Cleveland, Dr. John C. Cook, Dr. J. C. Culbertson; British, Dr. Sanger Brown; German, Dr. F. C. Hotz; French, Dr. Fernand Henrotin; Spanish, Dr. E. J. Gardiner; Italian, Dr. A. Lagario; Swedish, Dr. K. Sandberg; Canadian, Dr. R. D. McArthur.

The scope and duties of the above secretaries will be designated in the future.

C. WARRINGTON EARLE, *Chairman*.

CHICAGO NOTES.—The new dental law for Illinois, which was being pushed by the more progressive of the dentists of this State, is indefinitely postponed. The dentists, however, have not given up hope, but are organizing more thoroughly for the campaign upon the succeeding legislature.

The regular monthly meeting of the Chicago Dental Club was held Monday evening, March 27th, 1893. The regular order of business and paper for the evening were dispensed with, and the meeting took the character of a memorial meeting for the late Dr. Allport. Many kind words were spoken of him and many reminiscences, personal and professional, were indulged in by the members present. A committee, consisting of Drs. L. P. Haskeil, E. S. Talbot and C. N. Johnson, were appointed to draft suitable resolutions.

March 31st, 1893, the American College of Dental Surgery held its commencement in the Grand Opera House. Dr. L. C. Ingersoll, A.M., D.D.S., presided. The doctorate address was delivered by the Rev. O. P. Gifford, D.D. :

the valedictory by George S. Bauzet. In the evening the class banquet was held and addresses delivered by Prof. Ingersoll, Louis Ottoly, C. F. Brown, W. H. Harrison, John W. Tyndall, F. E. Pilcher, Rev. Mr. Bettman, and Mr. H. D. Coughlan.

March 28th the eleventh annual commencement exercises of the Chicago College of Dental Surgery were held at the Columbia Theatre. Twenty-six students were graduated. Addresses were delivered by A. W. Harlan, M.D., D.D.S., Truman W. Brophy, M.D., D.D.S., Elhanen Powell, D.D.S., Louis Ottoly, D.D.S., W. J. Canfield, D.D., and by the President of Lake Forest University, J. G. McClure, D.D. The banquet in the evening was given at the Leland Hotel, C. E. Bentley, D.D.S., presiding. Toasts were responded to by Drs. C. E. Bentley, H. E. Morey, W. C. Davis, A. H. Peck, Hon. C. T. Neely, Wm. Quing, W. C. Barrett, J. G. McClure, A. W. Harlan, T. W. Brophy, and Rev. M. Mangasarian.

The annual meeting of the Chicago Dental Society was held Tuesday evening, April 4th, 1893. The secretary's report showed an increase of forty members during the year, and the treasurer announced \$600 in the treasury. The president, in his annual address, offered several valuable suggestions. Among them being the closer attention to the papers and cases presented by the members of the society, also the erection of a building in connection with other professional societies, which might be used as a permanent home, which should contain meeting places, library, etc.

The regular monthly meeting of Odontographic Society was held at the Commercial Hotel, Monday evening, April 10th. The essayist for the evening was Dr. J. W. Slonaker; subject, Nitrous Oxide. The usual large number of members were present. Several new members were added to the rolls, and in every respect this society manifested its usual activity.

The organization of the new Dental Club has been effected. An elegant building at 300 Michigan Avenue has been secured. It will be handsomely fitted as a club house, and everything will be done to make the entertainment of dentists visiting the city during the summer as cordial as possible. To use the expression of one of the promoters of the scheme, "It will be about right in every respect."

The dentists of Illinois and of Iowa are looking forward to an interesting meeting May 9-12, inclusive. The meeting of the Illinois State Dental Society will be held at Rock Island; the Iowa State Dental Society will be held at Davenport. These cities are on opposite sides of the Mississippi river, and arrangements will be made so that members of either society may attend the meetings of the other and listen to the papers, see the clinics, etc., of both. This meeting it is expected will be one of note, and in spite of the counter attractions at Chicago, a large number will be in attendance. No efforts are being spared by the officers of the two societies to make this meeting the most successful one either society has ever had.

The dentists of Chicago are leaving no stones unturned in order that their friends who visit the World's Columbian Exposition may not lack for cordial treatment. They will be pleased to see them at their offices; will be willing to become individual bureaus of information, and in every way will endeavor to have their visitors have a good time, for which there will be no additional charge.

ANON.

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CONTRIBUTIONS.

PRESIDENT'S ADDRESS.*

"LANDMARKS."

BY W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, O.

THIS meeting is the thirty-fourth annual landmark of this association. We look forward to these landmarks because of the bond of professional and social union which the members of this society enjoy. There are reasons for this affection, and among the first is its age. Born November 3rd, 1857, at Tremont Hall, Cleveland, O., the child began to grow and now one hundred and thirty active members have their names upon the roll. This meeting should be called the thirty-sixth landmark, but as the charter was not obtained until 1859, we have numbered these meetings from that time. The Northern Ohio Dental Association was the second society formed in this State, at least, that had any permanency. The Mississippi Valley Society was the first. Like a number of these societies, which were of early formation, the Northern Ohio has in its progress made itself felt in the history of the dental profession by means of some of its members attaining world-wide reputation. In this society, years ago, that seer whose knowledge and skill were sufficient to entitle him to the name of the "Father of Dentistry," Dr. William H.

* Read at the Northern Ohio Dental Society, Akron, May, 1893.

The editor and publishers are not responsible for the views of authors of papers published in the OHIO DENTAL JOURNAL, nor for any claims that may be made by them.

Atkinson, made his *début* in dental society. He was a notable example of generosity and professional ability. Others, such as Doctors B. Strickland, B. F. Robinson, F. S. Sosson, H. H. Newton, and John Stephan, who have passed out of this world and now have their abode in the Eternal City, have left good works and tender memories behind them, which we as a society, individually and collectively, must revere.

Among the living, actively honoring our profession, are the names of Charles R. Butler, Corydon Palmer, J. A. Robinson of Jackson, Mich., and a host of others whose names are familiar to the readers of our journals. These, and our honorary members, have by their presence and assistance given this society an impetus, which, like Tennyson's brook, goes on forever.

We have to feel then that this society is one of the landmarks among the one hundred and thirty societies of the country.

The present year, 1893, with its three great dental congresses, marks an epoch in dentistry. These are the World's Columbian Dental Congress at Chicago, the International Medical Congress at Rome, Italy, and the Pan-American Medical Congress at Washington, D. C.

The last two whilst bearing the name of Medical Congress, have Sections devoted to dental and oral surgery. Such recognition of dentistry as a specialty of medicine is gratifying.

The birth of this series of landmarks occurred when the American Medical Association adopted the resolution presented by Nathan S. Davis, M.D., of Chicago, recognizing dental science as a specialty of medicine. The resolution, however, is specific in its demand that the medical studies in the dental schools should be equal to those of the medical schools.

The Columbian Dental Congress at Chicago, in August, will be a glorious event. Our efforts will be reviewed by foreign critics and the sovereignty of "American Dentistry," if such a permissable, must be maintained. It is the duty of every reputable dentist to aid the management in making the congress a grand success, and an indisputable landmark for all ages.

Dentistry is not a new vocation. Egyptians were the first dentists that we learn of. Etrurians practiced dentistry as a specialty of medicine, and bridgework was performed by these people twenty-four hundred years ago.

Erasistratus extracted teeth with forceps 2,000 B.C.; Esculapius, 1,250 B.C., used a narcotic to produce insensibility for tooth extraction.

Celsus introduced gold foil for filling teeth, 14 A.D. During the reign of Louis XIV. in France, and George II. in England, royal authority proclaimed dentistry a profession distinct and separate from the art of shaving and hair dressing.

This might be called the first landmark of dentistry as a profession, and also its distinction from a trade.

John Woofendall was the first dentist in America. Of the educational landmarks, Chapin A. Harris organized the first dental college. Now thirty-eight colleges dot our country as educational centers. Correlated to these are the National Association of Faculties and the National Association of Dental Examiners. These bodies enhance the work of the colleges.

The American, Southern, and Women's Dental Associations, and the Post-graduate Reading Courses, together with the various State associations, are all landmarks of importance. The first dental journal published was the American Journal and Library of Dental Science. The journals of the present year are vastly superior to what they have been in former years. Our OHIO JOURNAL as well as the *Cosmos* and *Items of Interest* have made great strides in journalism.

Diversified topics have been chosen as subjects for text-books during the past five years. A remarkable scarcity of suitable text-books for students previously existed. The "American System of Dentistry" is a work almost worthy of adoption as a text-book *in toto* for students. But it is not complete without "Black's Dental Anatomy," and "Miller's Micro-Organisms of the Mouth" (complete), both decided landmarks in the progress of dental publications. Every intelligent dentist would do well to become a master of these works. Farrar's, also Talbot's works on "Irregularities of the Teeth;" "Mitchell's Chemistry," "Refuss' Dental Jurisprudence," "Evan's Bridgework," "Garretson's Oral Surgery," "Kingsley's Oral Deformities," are all modern works.

From a medicinal standpoint perhaps the greatest landmark the dental profession can offer is that of the discovery that nitrous oxide gas produces anæsthesia.

In practical experience we must acknowledge landmarks in

the discovery of the rubber dam, dental engine, cohesive gold, amalgam, cement, mallets, uses of electricity, and not the least among these, porcelain teeth ; all aid in giving serviceable aid to our patients.

In the State of Illinois, December 4th, 1888, one of the greatest landmarks of the dental profession was enacted. I refer to the incorporation of the Dental Protective Association. We cannot honor Dr. J. N. Crouse, the founder of the association, too much, for, by this protective agency, the profession has saved more than a million of dollars per year from patent companies. It is a duty every dentist owes himself, family, and profession to become a member of the Dental Protective Association.

In concluding let me say that I intended to be brief in this address. Let us congratulate ourselves upon the fact that our society is prosperous. One of the reasons for this prosperity is that the business of the society is conducted by the Executive Committee.

Unlike most societies we can boast of plenty of money in the treasury ; in thirty-six years having had but three treasurers, and no yearly dues are exacted from its members.

ARTIFICIAL CROWNS.*

BY D. A. ALLEN, D.D.S., TOLEDO, O.

DURING the last few years increasing attention has been given to this branch. This has been due to several causes. Chief among these are—1st. The ever-growing desire, upon both patient and operator, to preserve the natural organs as long as possible ; 2nd. The increased facilities at the disposal of the operator ; 3rd. The many advantages to be gained by the combination of porcelain and the noble metals.

There are several methods of using all porcelain, porcelain and metal, and all metal crowns. Such as the old Stockton, the more modern wood pivot, Bonwill, Logan, Parmlly Brown, Foster, Weston, How, Bing, Mack, Kirk, Meriam, Richmond, Dennett, Litch, etc., etc. All being more or less useful, and each having warm advocates.

From this list, together with the various combinations of

* Abstract of a paper read before the Northern Ohio Dental Society, Akron, May, 1893.

the principles of two or more of them, we see there is a large scope for the choice of the dentist for the particular case in hand; and he who uses most judgment in the choice, and most skill in applying it, will succeed best.

We believe that no one should tie himself to any one method and exclude all others, as there are cases where one method will answer better than any other; others where another has peculiar adaptability; still others where the combination of the principles of two or more are needed to produce the best results.

The utmost care and judgment therefore should be exercised to do the best possible in each case.

Upon the presentation of a case, difficulties present themselves which must be met and overcome. Among these are the condition of the stump to be crowned; the amount of destruction it has undergone; and the condition of the surrounding tissues.

After having cared for the health of the root and surrounding tissues, and properly shielded it from further injury, we turn our attention to the preparation of the stump for the reception of the substitute of our selection.

Here arises other difficulties, which must be contended with. They may be enumerated as, extent of breaking down of the remaining crown and root; the age, sex and condition of patient; occlusion, probable strain it will be subjected to, accessibility for manipulation, etc., which must aid us in the choice of the method which promises the most permanent results, with the least destruction of tooth substances, and most nearly restores the last part to its original usefulness and appearance.

The combination of two or more methods often being necessary to the accomplishment of the end in view.

Having made choice of the method to be pursued, thoroughness should mark every step of the procedure, as the durability and usefulness depends upon the exactness with which all the details are carried out.

Our aim should always be to save as much as possible of the remaining structure, and to do as little injury to the surrounding tissues; and to reproduce, as near as possible, the original characteristics of the member operated upon. Always remembering that we cannot improve on old dame Nature.

Having had considerable experience in this branch of our calling, and having had quite an extended observation of the

methods and manner of preparation of roots for crowns by others than myself, I deem it proper to mention a few of the faults most commonly met with in the preparation of stumps for artificial substitutes, and the adjustment of the crown to the same.

The first and most common and serious error I have to contend with, is to impress upon these men the importance of properly shaping the roots. These are almost invariably left nearly if not quite the original size and shape, which makes it impossible to give a crown its proper contour and defeats the object of retaining the interdental space, and makes the crown too large at the cervical margin; larger by twice the thickness of the gold used.

This fault also prevents the crown from fitting at its lower edge, where it is most essential it should fit as perfectly as it is possible to make it.

The root should be trimmed straight on its sides, or slightly slanting, so that the exposed end will represent a truncated cone; leaving plenty of space on the proximal sides, to allow for the thickness of gold and the interdental space, which should always be maintained.

Another serious fault is putting the crown too far under the gum. This not only cuts the attachments loose from the root to the extent that it goes beyond the free margin, but sets up periodontal irritation, which sooner or later loosens the root and the case fails.

In most cases it is necessary to remove all of the enamel remaining on the root, and in cases where the adjoining teeth have moved together and partially closed the space it is good practice to remove considerable more; unless it is practicable to move the encroaching teeth back to their original position.

The lower edge of the crown should conform with the outline of the attachment of the free margin of the gum, and should go no farther. It should also be made thin at the edge and burnished smooth, and gradually swell out as it rises from the gum, an exact copy of a typical natural crown, of the class it represents, and knuckling with its fellows and articulating fully with the opposing organs of the opposite jaw.

Another serious fault with a great many operators is the fact that they do not let crowns come into full articulation. They

should generally be allowed to articulate fully with the opposing fellows, or they will work out from the socket and expose the edge of the crown, and thereby loosen the root to that extent and also render it more liable to deleterious influences from contact with food and the oral secretions.

Another important matter in connection with this subject is the gold used where gold crowns are to be set, or bands are to be adjusted to roots for the mounting of porcelain crowns with metal base.

Pure gold is advocated by many expert crown workers; but this, we believe, is not the best form for the purpose.

Although pure gold, it is asserted, can be burnished up to the root with a small burnisher held in the fingers (oftener it is stretched instead), the enormous power of the jaws, as compared with that of the fingers, it can readily be seen will soon stretch the band and thereby loosen the crown.

It is my opinion that gold finer than 22 k. should not be used and should be quite thick.

If pure gold is used, it should be reinforced with gold that is stiffer or with solder.

Never rely upon making a fit by the use of a burnisher, but make it fit before setting it upon the root. The burnisher is very delusive.

Finally, our aim should be to see, not how quick or how cheap, but how perfect and how durable we can do whatever we undertake in this most useful but shamefully abused branch of our art. Thereby maintaining the high reputation that we "American dentists" have rightly gained, being acknowledged in all countries as being the first in the whole world; and putting to shame those pretenders and charlatans whose only aim is to fill their pockets without one thought of the obligation of operator to patient, in rendering the very best services possible and thereby extending the period of usefulness of an organ which serves a great purpose in the human economy.

NEW REMEDIES AND THEIR APPLICATION.*

BY L. P. BETHEL, M.D., D.D.S., KENT, O.

Of the many new drugs recently put on the market several are applicable in dental practice; as the following:

PYROZONE†—This drug is prepared in three different strengths. medicinal pyrozone is a preparation containing three per cent. of hydrogen peroxide, combined in such a way as to render the solution stable. Peroxide of hydrogen as ordinarily prepared contains, when fresh, fifteen volumes of the confined gas and is in reality a 3% solution. Peroxide of hydrogen deteriorates quite rapidly at the ordinary temperature as gas is slowly given off at a temperature of 34° F. and increases in rapidity as the temperature is raised. Medicinal pyrozone deteriorates very slowly if at all. In experimenting I placed a quantity in a wide mouthed bottle and left uncorked, exposed to light and air, in a warm room, while the original bottle was placed in a dark, cool place. At the end of ten days the two were tested in pockets around the roots of teeth, congested and spongy gums, and on pure pus cultures, with apparent indistinguishable strong effervescence in each.

Medicinal pyrozone has no deleterious action on the tissues of the mouth, is non-poisonous and unirritating. It may be used with good effect for cleansing root canals, as an injection about the necks of teeth after the removal of calculus, for the removal of green stain from the teeth, as a cleanser of pus cavities, and in fact wherever peroxide of hydrogen is advocated. It is also a hemostatic and a bleacher of tooth substance.

Antiseptic pyrozone is a 5% solution and the Caustic pyrozone a 25% solution. These are etherial solutions, inflammable and volatile. They should be kept in a dark, cool place well corked. Upon evaporation of the ether, however, the antiseptic solution gets stronger, instead of weaker, and may become caustic. Applied to the skin or mucous membrane the antiseptic pyrozone causes a burning and prickling sensation and leaves a white stain, which is more of the nature of a bleached spot than

* Read before the Northern Ohio Dental Association, at Akron, May, 1893.

† Manufactured by McKesson & Robbins, New York City.

a true eschar. It disappears after one to three hours and the tissues return to apparently a normal condition. The Caustic pyrozone acts about the same with possibly more of a burning sensation after the application. Both of these preparations should be placed where wanted, and it is best to use but a limited quantity of the medicament so that it will not spread out over healthy tissues. The tissues may be protected, however, by smearing the parts with glycerine. Glycerine or glycerite of tannin will relieve the smarting and tingling of the pyrozone. The pyrozone preparations act more energetically on moist than on dry surfaces. The Antiseptic pyrozone is used in root canals, for the removal of green stain, to stop suppuration and reduce inflammation from whatever cause, as an application in pyorrhea alveolaris, etc. The Caustic preparation is used principally for the treatment of pyorrhea alveolaris. The addition of trichloroacetic acid seems to make it even more effective. This acid being a solvent of calculus removes all remaining incrustations from scaling, and it is a stimulating astringent. The pyrozone preparations are all bleachers and hemostatics. They are all non coagulators of egg albumen. In the etherial solutions, aside from the destructive action of the gas on micro-organisms, the ether in itself is a good antiseptic and will kill most bacteria. It should be borne in mind that pyrozone causes effervescence not only in the presence of pus, but of blood, and in fact wherever there is foreign organic matter. The effervescence is therefore not a sure indication of the presence of pus.

In these three preparations we have a wide range of useful drugs.

EUCALYPTUS AND THYMOL ANTISEPTIC.*—This is a preparation containing borate of soda, benzoic acid, boric acid, thymol, oil of eucalyptus, oil of wintergreen, oil of thyme, oil of peppermint, and fl. extract of wild indigo. It may be used externally or internally. It is a non-coagulator of egg albumen. It may be freely used as a mouth wash, root dressing, general detergent, for cleansing the hands, and wherever a good antiseptic is desired. It may be used freely about the mouth as it is non-poisonous, non-irritating and not injurious to tooth substance.

ALUMNOL.†—An Aluminum salt. It is a white non-hygro-

Manufactured by Parke Davis & Co., Detroit, Mich.

† Lehn & Fink, New York, Importers.

copic powder, readily soluble in water, and suitable for application in various forms. Solutions may be from 1% to 10%. It arrests suppuration and secretion, and hastens the closing of wounds. Its use is indicated in the irrigation of cavities, abscesses, infected wounds, as an application in pyorrhea pockets, etc. It is an antiseptic, astringent, a strong coagulator of egg albumen, and possesses hemostatic properties.

ACETO TARTRATE OF ALUMINUM.—This is another salt of aluminum—possessing antiseptic, astringent, and hemostatic properties. It is a strong coagulator of egg albumen. It is useful for controlling hemorrhage after extraction of teeth, irrigating cavities, abscesses, infected wounds, as an application to congested gums, pyorrhea pockets, etc.

JOHNSTON'S ETHERIAL ANTISEPTIC SOAP.*—This is one of the nicest preparations for rendering the hands antiseptically clean that I have seen. It is in the form of a liquid soap. When used it has a strong ether odor, but no odor remains after rinsing the hands, and they are left white with a soft velvety feeling to the skin. Bichloride of mercury may be added to the soap without precipitation, an advantage over other forms of soap.

With a view of testing the comparative values of the above antiseptics, pure cultures of pyocyneus (a bacillus found in pus) were used by taking a small quantity of the antiseptic and placing on a glass slide, mixing in some of the culture, and placing a cover glass over this, examining through the microscope. This bacillus is actively motile and when movement was suspended it indicated that the germs were killed. Caustic, Antiseptic and Medicinal pyrozone acted immediately; no movement was seen after the slides were examined under the microscope. Medicinal pyrozone that had been exposed to light and air in a warm room for ten days caused suspension of movement after one minute. Johnston's ethereal antiseptic soap acted immediately; no motion observed. Alumol, 10% solution, no movement after one minute. Eucalyptus and thymol antiseptic solution, no movement after four minutes. Aluminum aceto tartrate, 5% solution, no movement after 5 minutes.

Some allowance must be made, however, in this test, for varying quantities of microbes and antiseptic solutions. An antiseptic must permeate the albuminous coating of the micro-

*Manufactured by Parke Davis & Co., Detroit, Mich.

organism before it can kill; in some of the cultures the micro organisms were massed together more closely than in others, and hence would take longer time for the antiseptic to act on these although there seemed to be comparatively little difference in suspension of movement in the individual and massed microbes.

Other tests were made on pure cultures of pus cocci, the staphylococcus pyogenes aureus, one of the most resistant of the pus microbes. This micro-organism is not motile, hence cultures were made in gelatine tubes and a small amount of the antiseptic placed immediately over the culture. This was left but a moment and the tubes set aside. If the culture developed after several days it indicated that the micro-organisms were not all killed. The result of this experiment was that the micro-organisms began developing on the fifth day after the application of the pyrozones. On the seventh day after the application of the antiseptic soap. On the second day after the application of aceto tartrate of aluminum and alumnol. In one and a half days after the application of eucalyptus and thymol solution.

This experiment showed that these drugs have a growth hindering effect but do not kill resistant bacteria on short contact.

Further experiments on this same bacteria were made by leaving the various solutions in contact with the cultures for five minutes. The result of this was that after twelve days no growth of the micro organisms took place. This showed that all of these preparations are good antiseptics if left in contact with germs for a few minutes. Further experiments, as a mixed culture of bacteria taken from a root canal, showed no growth after these drugs had been left in contact with the cultures for five minutes.

As an efficient tonic preparation for patients, Weld's syrup of iron chloride,* seems to be the best. It is compounded in such a way that it has no injurious effect upon the teeth that the ordinary preparations of iron have.

Coca Cordial* is also highly recommended as an efficient and pleasant tonic. It is often advisable for the dentist to prescribe a tonic both prior to and after an operation and he can do no better than to recommend the above.

Sodium peroxide has been mentioned as a useful drug in dentistry. Its action is similar to peroxide of hydrogen, and as

* Manufactured by Parke Davis & Co., Detroit, Mich.

a bleacher of discolored teeth it is highly recommended. I have as yet made no experiments with this preparation.

Tropa cocaine is the newest local anesthetic. It is said to be as efficient as cocaine but only half as poisonous. Its present cost \$240 an ounce, however, practically places it beyond the average dentist.

POPULAR DENTAL EDUCATION.*

BY L. L. BARBER, D.D.S., TOLEDO, O.

YOUR committee in asking me to write a paper chose a subject that is bound to place the writer in rather a peculiar and unenviable position; for we all know how far divided the profession is to-day upon the subject "Popular Dental Education." However, each one should have his or her opinion upon the subject—at least I have mine.

To me the subject of Popular Dental Education is a very important one, so much so that I do not feel able to do it anything like justice in the way of writing a paper for this Society.

That the masses should be better informed upon the general laws pertaining to the care of the mouth and teeth in their normal condition, is a fact that no one of us will dispute; so is it an undisputed fact that they should deem it their duty to employ such means as will best and longest retain the mouth in a healthy condition and the teeth best able to perform their work.

The question is: how best can they be taught by the dental profession to attach as much importance to such matters as we think they ought.

Certainly the methods practiced by many practitioners, such as handbills, large and glowing; newspaper ads. with all of the latest attachments—so to speak—are *not* the proper ones.

There is one thing sure: as well might a man expect to fit his son for the pulpit by educating him in gambling and sporting houses, as for the dental profession to expect the masses to receive anything like a proper knowledge of the care of the mouth and teeth from the amount and kind of reading matter that they now get upon the subject.

Do not understand me to say that there is not plenty of good

* Read before the Northern Ohio Dental Society, at Akron, May, 1893.

printed matter in circulation, but I do say it is not in the form for the public.

That which they get is at the best nothing more than the advertisement of some such man as we all know too many of, or some article written by a newspaper reporter, who, wishing to give the public a thing he knows they need and do not get from the dentists, does the best he can; but oft times comes very far from the mark. But you say how shall the proper kind of knowledge be disseminated—well, it is hard to say which is the best—but I believe a great deal can be done in the following ways, while we have nothing to lose in them they will, I believe, do much good.

1st. Instruction at the chair: in this way much good can be accomplished. You must, however, use your own best judgment as to whom and what you say. But the proper instruction to the right person—you will find to be an excellent way. Another method best suited to the presentation of the subject would be by short, concise but simple articles on care, etc. of mouth and teeth in pamphlet form—written by a board or committee created for such purpose—then the distribution of the same by individual members. Also short newspaper articles written by proper persons and in such form as to make them a matter of general education.

There are many of our magazines and widely circulated papers that would at all times be only too glad to publish properly written articles upon the subject of dentistry. Then talks at public evenings to be held at the dental meetings, would in my opinion, result in great good in this matter of educating the public.

Then many papers can be read before the State Society that can be so written as to be of great value in this matter if published in the newspapers.

Prepared reports of each dental meeting should be published in the newspapers—I say prepared reports—because the proceedings can by a proper committee appointed for the purpose be made very interesting and profitable reading for the public at large.

By short concise but simple pamphlets written under the supervision of or by a committee appointed by the State Society for the purpose of setting out plainly the true A B C of right

popular education. Then such reading matter can be distributed in such way as may seem best to the Society. I believe an incalculable amount of good can be accomplished in this way.

Dr. Catching, of Atlanta, Ga., suggested to me a plan that has been tried by him in the South: that of talks to the teachers of all the public schools. I will add to that the Teachers' Institutes as well.

Papers read before any audience if made simple and to the point, giving such facts as the masses need, will be found interesting and usually what they want.

In April I read a paper before a club in Toledo upon the mouth, teeth and their care. The audience was composed of men, women, and children and I am confident it did not do them any harm and I have reason to believe, at least, some of them learned some simple facts—yet very important in their way. The talk was made plain as possible by drawings, etc. The use of tooth brush, etc. explained.

I believe the profession should make it their business to in some way and some time have taught in every school the hygiene of mouth and care of teeth; for is this not quite, if not more essential than many things now taught, and if every dentist in Ohio from now on do what he could toward this one object we could before five years have in every public school in Ohio at least, some attention given to this subject.

As to pamphlets now published: the one on *The Mouth and Teeth* by J. W. White, M.D., D.D.S., also the one published by the Wilmington Dental Manufacturing Co. are good.

FACULTY ADDRESS.*

BY LOUIS OTTOFY, D.D.S., CHICAGO, ILL.

IN accordance with a time honored custom, at every annual commencement, some member of the faculty is selected to deliver an address to the graduating class, and incidentally also to speak to those of the of the general public, who may have assembled to witness the exercises. This year, by reason of a change from a two to a three years' course of study, an unusually small class passes beyond the college portals and in order to maintain some

*Delivered at Chicago College of Dental Surgery, March 28, 1893.

consistency between the size of the class and the representative of the faculty, my colleagues have chosen one of the youngest of their number for the task. Though the class is small in quantity, in quality its members equal those of any class previously graduated from this, or for that matter, from any other college in the United States.

In addition to what these young men have been taught for the last few years, and supplemental to the advice freely given them on all occasions, I have but little to add. I desire to remind every member of the graduating class that the obligations they assume to the public and to the community where they cast their lot, is increased by that, which now becomes one of their sacred inheritances: to aid in the elevation of their profession. They are not sent forth from the college halls to perform only necessary operations, but for nobler purposes. When they are addressed as "Doctor," as they now have a full right to be, they should bear in mind the significance of that title, they should remember that "doctor" means "teacher". That which is embraced by the word "teacher" is one of the most important of their functions. To teach is their mission; teach the public, educate the children. In almost any community where you locate you will find a number of people who do not fully appreciate the value of their teeth; this is not necessarily due to ignorance, the modern and rapid advance made by our profession, is to some extent accountable for it, often fairly educated persons are impressed with the idea that the value of the teeth is comparatively unimportant, except from an æsthetic point of view. Examine the natural contents of the mouth from a comparative standpoint, and estimate the value of a tooth regardless of the trail of diseases that follow the loss of the masticatory organs. An entire set of teeth should consist of thirty-two parts; as a general rule by the non-eruption of one, two or more of this number the set consists of only thirty and oftener of twenty-eight. Compare the loss of one tooth out of a set consisting of thirty, with an equivalent injury to vision. Each eye corresponds in the service it can render to the individual by the faculty of sight, to sixteen teeth; is there any one within the sound of my voice who would voluntarily consent to have the vision of one eye impaired to the extent of one-sixteenth of its power? The five fingers of each hand have fourteen joints, about one joint to every tooth. Is there any

one here, who would voluntarily, and without some weighty reason, consent to the amputation of the joint of a finger, though diseased and painful, until all efforts to save it had been exhausted? Who would permit, or request, that his auditory apparatus be injured until the faculty of hearing had been reduced fifteen per cent. in the perception of sound? Who would voluntarily request the curtailment of any of his physical powers even though offered temporary relief, if he can be relieved without the loss of any part of the body? Yet many of those who will call upon you, will make just such requests—comparatively speaking,—as I have illustrated. They value the teeth from the standpoint of appearance—vanity, if you please. By far the larger number of the anterior teeth are saved because their loss is unsightly, rather than because the loss entails an impairment of one of the functions of the body. I opine that you will find your usefulness as teachers in the average community coequal with your value as mere reconstructionists of damage already done. I advise you most emphatically to bear this point in mind. And I wish to add that the office should be the school room, only the most extenuating circumstances should permit a violation of this rule.

Another point that is now uppermost in the professional mind, and to which I wish to direct your attention, is the question that embodies the subject of your future influence upon the profession itself. You must remember that the conditions that will place your profession and mine on an equal footing with the older ones, are now being considered. We were originally made of "medical" and of "dental" men, the question of our proper position is being solved, and so far as we are now permitted to judge, we are dentists after all. Grant due respect to all professional men. The physician is often the dentist's best friend and co-laborer, but formulate and learn to know, your own sphere.

One of the potent influences in the consummation of this most desirable result will be brought to a climax in this city, next August, by the convocation of the World's Columbian Dental Congress. I trust that every one of the graduating class will afford their teachers the pleasure of seeing them at this gathering. To those who have not given the matter serious thought, I would say, that probably few in this country will have an opportunity to enjoy the privilege of again witnessing a similar spectacle. It is confidently estimated that not less than two thousand dentists of every land and every clime will be present.

The dentist of America will have an opportunity to compare notes with his Asiatic neighbor, with Japan, China and South America, Italy, Germany, France and Russia, Great Britain and Austria, and indeed, with the dentists of every land where the practice of dentistry is guided by some intelligence; all will be represented by some members of our profession. To this grand intellectual feast, you, the members of the graduating class, as well as the students who are yet in the toils, are most cordially invited.

There is one other topic to which I wish to refer. Every graduate should at once make it a point to make himself felt in his community as a citizen above the average. I do not want to be misunderstood; no arrogance, nothing unapproved by the strictest laws of society should be assumed, but a respectful consideration touching the fellowship of man, and his general welfare, should be embraced. Follow your own individual inclinations, so long as they are approved by custom and good manners; if religiously disposed, your religion will best be illustrated by your acts of charity and philanthropy. If your tastes are literary affiliate with your literary society, if there is none in your town, organize one, and form a habit of contributing to the literature of your profession; if socially inclined, join a respectable first-class club in your neighborhood, and when it considers questions of public interest, be present and give your aid and counsel. In other words, have people recognize the fact, that you are a useful member of society, and not simply a practicing dentist. Associate with business men, be able to discuss not only the unimportant occurrences of everyday life, but also the important topics of the day. By your constant application to good books, magazines and newspapers place yourself in a position to discuss intelligently questions affecting other countries as well as ours, do not disdain an attempt to learn the proper pronounciation of the word Hawaii, learn that country's resources and social condition; let public questions, the tariff, the silver problem, British power on the American continent, the political destinies of our nation, etc., be fit subjects to receive your consideration. It creates a weary feeling in your friends, if you happen to be located elsewhere, and some of your neighbors come to town, if in response regarding your welfare and usefulness, they can only say: "O, he is a fair dentist, getting along so so." Instead of having only

that to say of you, he should be so impressed with your worth and your good qualities, as if the town could not get along without you.

When you assume a position in relation to general or local affairs or in the political atmosphere of your profession, and believe that position to be right, maintain it regardless of the friendships or enmities it creates. While I have advised you to broaden your sphere of usefulness. I have not lost sight of the fact that the individual who believes that he can do everything and knows everything, is not perfect in any one thing; it is well therefore in order to succeed, to make one subject, or even only one branch of a given subject, your life-work. This may be a branch of our own professional work or it may be some public matter. I caution you, however, not to become too much infatuated with a "hobby." If you do select a "hobby" to ride, treat it like a living animal; give it all the rest you can. Above all things do not become a "crank" on any one subject or a dental hobbyist, permitting your mind to run away into one line of thought on any and every occasion. This thing of being "cranky," has been quite the fad in some of the professions for some time, and it always reminds me of a story, for whose repetition at this time, I offer the apology, that inasmuch as it is old as the mines, many of these young men may not have recently heard it, it aptly illustrates the self-imposed importance of the value of the hobbyist's opinion.

A certain Scotch student of languages had given that subject such close and divided attention that he became a crank on a universal sign language. A means of communication whereby one can converse with any stranger, even if they do not understand each other's language. He was in the act of visiting a large university; the president had been warned in advance, of his coming, and he concluded that the best method to be pursued with a crank was to fully agree with everything that he said. When the crank made his visit he enquired of the president if he believed in the sign language. "O, yes, most emphatically I do, I believe it is the coming language," was the reply. This pleased the crank exceedingly. "Have you a professor of sign language in your institution?" was the next query. As the president had already pretended to be so ardent in his belief in this subject, he stated that the institution had such a member on its faculty, and

the crank at once expressed his desire to meet the gentleman; the president, now getting deeper and deeper into the mire, said the professor was absent from the city and would not be back until the following day, having previously learned that his hobby visitor was obliged to leave the town that night. This led to expressions of regret, but the man of language was equal to the emergency, and at once concluded that he would stay over till the following day to meet the important individual. The affair became very embarrassing for the president, and evidently something had to be done. The president had a young man, Patsy, in his employ, who had been desirous of becoming the owner of a certain suit of old clothes, which the president had laid aside for a rainy day. The president, knowing the young man's ambition to wear that suit, told him that if he would promise to meet a gentleman the next day, and agree to sit down in the same room with him, promise not to speak a word, the suit would be his and he could wear it on this occasion. Patsy accepted the engagement on one condition: he had been so unfortunate as to lose one eye and was exceedingly sensitive on this point, if the gentleman would agree not to mention the loss of the eye, all would be well. The president agreed that he would see to it that no reference to the absent eye would be made, and the silent interview was arranged for. After its conclusion the president was anxious to learn the result. The hobbyist came to him exultant: "O, this language of signs is wonderful, wonderful," and congratulated the president on the university's great fortune in possessing so able an exponent of the science. "Well, what did you do?" was the query. The crank says: "I went in and raised one finger of my right hand, signifying that there is one Father, your professor immediately raised two fingers, signifying that there is a Father and a Son, I then raised my right hand with three fingers extended, signifying that there is a Father, Son and Holy Spirit, the professor then closed his right hand and placed it on the table, signifying that the Three are One. O, this is a wonderful language, wonderful."

After the crank had departed, the president called Patsy to get his version of the interview: "Immadiately afther he came in, he put op wan finger, signifyin' that I had only wan oi, I put op two fingers, signifyin' that I had two oies, loike himself, then the blackguard put op thray fingers, signifyin' that we had only

thray oies betwane us, and just as I brought me fist down on the table and was goin' to lick 'im he shot out at the dure."

I trust that you, one and all, may be prosperous, and in a position to enjoy some of the luxuries of life, and that you may all lead lives of usefulness. I bid you God-speed.

COMPILATIONS.

THE DENTAL PROFESSION IN HUNGARY.

BY HENRY SALAMON, BUDAPEST.

THERE are two classes of persons who at the present time practise dentistry in Hungary.

1st. Doctors of medicine, who have gained the diploma after laborious and hard studies at the university, apply themselves to dental practice.

2nd. Mechanical dentists, who after working several years in a dentist's workshop, become their own master and open a dental office.

The rights of the doctor are not restricted in any manner, he may act without control and operate in the mouths of his patients, although the State does not demand from him any guarantee as to dental science. There are no dental colleges like the American or English ones, where the candidate will be taught, not only the science, but the mechanical art as well. For three or four years a dental department has been attached to the University of Budapest. The doctors visit it at pleasure during two or three months and gain some vague ideas of extraction, filling, and operative dentistry. Mechanical dentistry will be pursued in quite an accessory manner, and is a secondary occupation of the assistant (doctor of medicine) treated from time to time for some hours.

This is the doctor's preparation for the exigencies of dental practice. Without any special examination, the doctor of medicine becomes in this manner a dentist.

On the other hand the curriculum of the mechanical dentist suffers from another important evil. He labors at the side of a skilled mechanic of whom he learns the use of tools, the melting, refining, alloying, and working of metals and alloys used in den-

tistry, the properties of all substances used in making artificial teeth and dentures, to take an impression and fit dentures into the mouth. But he has neither the occasion nor the right to gain theoretical knowledge, therefore the extraction or filling of teeth is forbidden him.

One may imagine how the disastrous consequences of such a state, and such a division of labor.

On one side a medicine man with a baggage of theoretical science, without practical skill and knowledge, on the other side, a professional man with a large practical mind and view, without the necessary scientific basis.

But just as no amount of scientific acquisitions can compensate for lack of skill in practice, so also in the mechanical art the practical knowledge must be based on scientific principles. *Abstract Brit. Journal.*

ALL SORTS.

Blood Poisoning from Tooth Extraction.—The patient, age 28, of Tesh, in Berlin, had a tooth extracted, the operation being performed by a dentist living in "Unter den Linden." Soon after, bleeding began, and continued from Friday till Monday, so that at last the patient was obliged to go back to the dentist, who now stopped the hemorrhage. But apparently the wound had already become septic, for symptoms of blood poisoning appeared, and progressed rapidly. By Wednesday, it was necessary to remove the patient to Bethanien, where, some days later he died in great pain.—*Zahntechnische Reform.*

Hern (Dr.) on Obtaining a Correct Model of a Prepared Root.—This device consists of a small copper shield about the diameter of the root, soldered to a guide pin. When the root is properly shaped and fully prepared take one of the shields or root trays and bend it to the angle of the root, and then put some softened gutta-percha on to the upper surface. This is then pressed on to the root and the gutta-percha forced up under the gum. An impression with the shield *in situ* is then taken with ordinary composition, and in this way an excellent model results.—*Brit. Journal.*

Goodrich (S.) on the Setting of Crowns.—When I set a tooth I have some litmus paper which I use to keep it dry, and I dry the gum thoroughly, putting a little oil of eucalyptus in the root to make it a

little oily, and then I dry the gum with litmus paper and hot air; I then dust a little powder on the gum, and the natural moisture of the gum will mix with it, making quite a little cement, and keeping the root from becoming contaminated in any way. I then place some of the material on the end of the tooth and fill it, and press it home, if necessary tapping it with a mallet. I hold it there ten or fifteen minutes or so, until it is all right to dismiss the patient.—*Extract Review.*

Nutting (Dr.) on a Method of Taking a Bite.—The method is to wax up the base plate, taking a little square strip of wax half an inch each way, and lay around over the ridge, having the patient press back the head so that the masseter muscles are tense. Then have them change around laterally until you consider the position is right, then trimming down, leaving as a guide the lower edge of the wax for the position of the upper teeth to show below. When secured take some little staples like those in use in carpentry, a kind of three-sided square, and press them in and fasten that right in the mouth, and then put it on the articulator. It is a simple little thing, but quite important. Fasten with those little staples, one in the center and two on each side.—*Extract Review.*

Ackland (Dr.) on a Splint for the Lower Jaw.—This new form of apparatus for fractures of the horizontal portion of the jaw, consists of a plated metal horse-shoe-shaped piece which rests upon the teeth, and a similar one which is applied below the chin. These are fastened together by two moveable clamps. The first is lined with ordinary splint gutta percha, which is warmed and driven down on the teeth and gums. The chin plate, lined with two layers of wash-leather is put into position and held there. The swivel clamps are then fitted on to both plates, and by a thumb-screw to each can be made to clamp both the plates together until the requisite tension is attained. It is claimed that this splint can easily be kept clean, that no bandages are required and that mouth washes can be applied over and over again in different cases without alteration or renewal.—*Brit. Med. Jour.*

Peck (Dr.) on a Method of Preparing a Logan Crown.—Take the common Logan crown, and taking number thirty-six platinum for the cap, and thirty for the band, solder the two together, and then place enamel around about two-thirds of the anterior portion—all that will show when it is in position with the two teeth joining. The band on the palatine surface is left clear. Now this has all the benefits of the Logan crown with the gold band and with everything tight there. The cap soldered to the platinum dowel in the crown, when combined with the enamel, leaves nothing on the front face of the tooth to prevent the

natural appearance. We all know that in the setting of a Richmond crown, we select a perfect match and yet when they are in a position in the mouth there is quite a material difference, so that it is noticeable, not only to the dentist, but to the patient. In this case there is no break at all. There is nothing there that will indicate an artificial crown because the translucency of the tooth which is not affected by the dowel in the crown, is not changed a particle, and the enamel coming up under the free margin of the gum makes it perfectly tight, while the appearance is simply perfect.—*Extract Review.*

Van Woert (F. T.) on the Use of Trichloracetic Acid and Pyrozone.—My attention was called to trichloracetic acid by a short article in one of the journals, that came from the pen of our esteemed colleague, Dr. Peirce, of Philadelphia; and later I began using the drug in connection with pyrozone, the combination of which has given me results in the treatment of pyorrhea remarkably satisfactory. There has been nothing presented to the profession during my practice that promises on much. A patient, a lady about thirty-five years of age, has been in my hands for treatment the last year and a half, and I could not see that I had made the least advance toward success. The disease was apparent throughout the whole mouth; but the lower anterior teeth were the ones that I had about decided to remove, and as a last effort to save them I began treating with the trichlochloracetic acid and pyrozone. At the end of ten days, during which practically only two treatments had been given, I had the satisfaction of finding the parts in a healthy condition,—not the least sign of pus, and apparently a perfect union between the soft tissues and the tooth, which seems to me almost marvellous. What the ultimate outcome will be I can only guess, as the whole thing is so entirely new.—*Extract Cosmos.*

Stewart (Carrie M.) on Lysol in Dentistry.—Lysol, a dark brown syrupy liquid, in the concentrated state, produces a beautiful straw colored solution in distilled water or alcohol, while water containing lime salts assumes a decidedly milky appearance by the addition of this agent. It possesses a characteristic odor which is not at all unpleasant, but rather agreeable. A one per cent. solution was found to be an anti-septic only, development appearing after three days on the first two plate cultures and a day or two later on the others. From a two per cent. solution upwards the agent is germicidal in its action in one minute. On the germs of saliva, no development took place in the plate treated with lysol, while eight colonies resulted in the plate of normal saliva.

Lysol more nearly answers the definition of a disinfectant than any agent experimented with, as it is a prompt and effectual deodorizer, a

good detergent and a prompt germicide; combining in one drug the qualities so essential for a dental disinfectant.

When used on very sensitive surfaces, the weaker solutions should be used first, as irritation results from the immediate application of a five per cent. or six per cent. solution to such surfaces.

In addition to its prompt, beneficial action, lysol is not disagreeable to most patients, and seemingly uninjurious to the teeth. — *Dental Register*.

Brown (Dr.) on the Setting of Inlays.—In using small inlays I dry out the cavity with alcohol and hot air, and then put in a little eucalyptus and leave just a little of that over the surface also. Into that I put my gutta-percha. I find that the chloro-percha and the softened gutta-percha have not resistance enough. There is not resistance enough to hold an inlay or anything else permanently, but when I work in a little gutta-percha with that and put my inlay in—if it is an inlay of this sort, I put it in without a great deal of pressure and hold it there for a moment or two until it has begun to cool, as I think that helps it to a great extent. I find the operation very satisfactory. I depend upon gutta-percha mainly where I have a root canal, and a pin right about there (indicating). In that case I simply fill my tooth with gutta-percha and heat the inlay, pressing it home hot. I use gutta-percha almost entirely on crowns. I have almost given up cement. I use alcohol and hot air, and then after that eucalyptus, and a little gutta-percha just at the neck of the tooth. I like the red gutta-percha for the back teeth, because it softens and presses in down around the neck of the tooth and makes a nice, clean cement.—*Extract Review*.

The Antiseptic Action of Tobacco.—As to the antiseptic action of tobacco, Professor Tassinari, in Rome, calls attention to the fact that as far back as in the seventeenth and eighteenth centuries, the use of tobacco was recommended by many physicians as a prophylactic in times of epidemics. In 1842 Professor Ruef, in Strasburg, it is said, stated that all the workmen employed in the Royal Tobacco Manufactory had remained exempt from contagious diseases. Reeholier made the same observations in 1883 and Walter Cock, of Texas, in 1889, even recommended tobacco smoking as a preventive against tuberculosis. Dr. Vassili, of Naples, in 1888, experimented on a balloon in which a layer of gelatine was sprinkled with comma bacilli. As soon as the smoke from one to four cigars, according to the intensity of the tobacco, was introduced into the balloon, the micro-organisms of the gelatine were completely killed. These various experiments were imitated by Tassinari and he found that by tobacco smoke the comma bacilli, the bacilli of pest and of pneumonia are destroyed, or, at least, arrested in

their development. In these experiments it was observed that the bacilli of cholera and of pneumonia were destroyed within a few minutes, while the bacillus of pest offered more resistance, and while the bacillus of typhus was scarcely interfered with. Tassarini also affirms that smoking delays caries of the teeth.—*Intr. Phar. and Gen'l Anzeiger*.

Crowther (L.) on a New Lining for Vulcanite Plates.—Rubber dam as a lining for vulcanite plates cannot be surpassed. You proceed as usual with your case and when ready for packing, first pack round the pins and flange; then cut a piece of red rubber the shape and size of your cast, large enough to come up as high as you will require your case when finished. Then lay a new clean, thin piece of rubber-dam over this and cut out a piece to fit; remove and paint your red plate all over with good red or black rubber solder or cement on one side, being careful that it is all covered well with the cement. Now take the piece of dam and place it smoothly on the painted side of your plate; press well down; make it quite smooth, being sure there are no air bubbles. If your dam has stretched, which it will, trim the edges to the red plate. Place your plate in the flask so that your dam will come next your cast. When you close your flask, be sure and see that the plate comes well up round the flange so as to hug close to the model and not allow any red rubber to be forced inside. Close your case by dry heat. Use paper vacuums and not tin, as the dam will not harden over tin.

Rubber dam is better than gold for a lining, as it is a non-conductor, prevents sore mouths and makes a very tough plate almost impossible to break; so you can make a thin, light piece of work.—*Amer. Journal*.

Human Saliva and Pathogenic Micro-Organisms of the Mouth.—The question of immunity has caused a number of experimentalists and investigators to make researches concerning the natural causes as well as the artificial means of rendering the organism refractory to infectious and contagious maladies. It was found at first that the blood of the organism had bactericide properties; later it was discovered that not only the blood had this remarkable quality, but many liquids of the organism, the muscular juice, for instance, milk, urine, etc.

M. Sanarelli (*Centralblatt für Bakteriologie*, X., page 817), following the same experiments, has investigated the action of human saliva on bacteria. The following is the conclusion of this work:

1. The human saliva constitutes a medium very unfavorable for certain pathogenous micro-organisms.
2. It possesses the property of destroying them more or less rapidly when their number is not considerable.
3. Even when it allows development (as with the germs of pneu-

monia), it is capable of modifying their normal characteristics by weakening and rendering them completely inactive.

The experiments of M. Sanarelli have been chiefly with respect to micro-organisms found usually in the mouth of sound or diseased individuals; the staphylococcus pyogenes aureus, streptococcus pyogenus, the bacillus of diphtheria, the micrococcus tetragenus, the diplococcus of pneumonia, the typhoid bacillus, and the cholera spirillum. The saliva was filtered with a Chamberland filter, and experiments were practiced by the plate method, as in the researches of the bactericide properties of blood. This fact explains, perhaps, the reason why the mucous membrane of the mouth is rarely affected with infectious maladies, in view of the fact that it receives so many dangerous infectious germs.—*Bact. World*.

Elroy (Chas.) on How to Treat Cocaine Poisoning.—Your first duty is to prevent syncope, afterward to combat respiratory and cardiac collapse. The therapeutic means of doing this are unfortunately very few. At the very beginning place the patient in a perfectly horizontal position, which will diminish the force of the syncopal condition. Sprinkle ice-water over the face, and to prevent convulsions envelop the body in cloths wrung out of cold water.

If asphyxia threatens, practice flagellations with wet towels, massage, artificial respiration.

Against tetanization of the respiratory muscles give inhalations of chloroform.

Where there is great pallor, provoke vaso-dilatation, modify the arterial pressure, and diminish the encumberment of the central circulation, by the administration of amyl nitrite (by inhalation.)

If these means prove ineffectual, and deglutition is impossible, give hypodermic injections of caffein, and of sulfuric ether (15, 30, even 45 minims).

In a word, bend your efforts toward moderation of reflex excitability of the nervous system, sustain the heart, and re-establish the equilibrium of the blood-pressure. The treatment of acute cocaine-intoxication is particularly and above all a case for arterial medication.

Commenting on the foregoing, M. Choupe (*Bulletin Medical*) counsels in addition the use of hypodermic injections of morphin. These should be given only in the very outset, however, and should be only sufficiently large to produce the physiological effects of the drug, say from one-half to five-eighths of a grain.—*Revue de Clinique*.

Johnson (C. N.) on Elements of Success.—We may profitably turn our attention to some of the minor requisites, and consider a few of the elements which go to make a successful dentist.

In the first place, a man must have the ability to do good work, and the conscience to persistently apply that ability. It is true that some practitioners who are lacking in ability manage to keep up a patronage for a time through the medium of a smooth tongue and a ready wit to excuse a failure, but sooner or later their sins will find them out and their patronage fail. Not only does a man lose patronage through poor work, but with a loss of patronage goes a loss of self-confidence, and a loss of self-confidence leads directly to a loss of self-respect. A man who has no faith in himself is not on the road to success. It should be the aim of every dentist, young or old, to perfect himself in every way possible for the proper performance of his work. If he discovers a lack in himself at any point, he should not rest until he had made good the defect. Some men acquire proficiency much easier than others, and dentistry is a rather exacting calling in this regard; but it is safe to say that there are few men practicing dentistry to-day who cannot, if they lay their whole energy to the task, gain a sufficient mastery over the details of their work to entitle them to a fair measure of success in practice. It is oftener undeveloped ability than lack of ability that is accountable for much of the incompetency we see in our ranks. If every dentist would covenant with himself to make an unceasing struggle for the very highest attainment within his power, he could not only go far toward securing his own success, but he would help to elevate immeasurably the profession of which he is a member. The future of dentistry would be brighter by far if every man connected with it were permeated with a proper progressive spirit.—*Extract Cosmos.*

Lee (Stephen) on Why Central Air Chambers should not be Used in Dental Plates.—Is it not malpractice to use air chambers in dental plates?

If we should disfigure any other part of the body as we do the roof of the mouth we would call it by some bad name.

Air chambers cause unnatural formations in the roof of the mouth, in proportion to the size and depth of the chamber used on the plate; and the thickness to which a plate must be made to permit such a depth of the suction, often impedes rather than facilitates the enunciation, to say nothing of the unpleasant sensation of constant drawing or sucking, until the membrane, drawn into the chamber, becomes callous and lifeless.

Now, how much better, for humanity sake, it would be for all dentists to make their plates, the shape of the mouth, and abandon the useless air chamber!

I wish to say here how every dentist can satisfy himself in five minutes of the inutility of the air chamber.

When you have fitted the teeth to the mouth, you say to yourself—"What a good suction the air makes to this plate"—but remove the plate from the mouth and fill the air chamber with soft beeswax and have it so it will not bear on the roof of the mouth, and you will find, perhaps to your satisfaction, the same suction that there was before.

Now I wish to say to the profession what has been my experience in a practice extending to *thirty-five years*, in Pawtucket, during which time I have made five thousand sets of teeth and every set *without* an air chamber.

My method is to make three or four ridges across the back part of the roof of the mouth on the plate by scratching gullies into the model. If the gum is soft I make these from one side to the other, across the entire model, but if it is hard (as the model shows) then I do not make them entirely across but only on each side of the median line.

If the plate bears too hard in any one place, I pare off *a little*, for if it clears the thickness of paper it is all right.

Thiesing (Dr.) on some Interesting Cases from Practice.—

Miss W., 45 years of age, and of good health, entirely lost the sense of smell for two years without assignable cause. She had been under the care of several medical men, without the least improvement, so that the lady gradually accustomed herself to the belief that she would not regain the sense of smell. But for some time she also complained of a disagreeable, bitter taste, and for this a medical man treated her for five weeks, as it was thought she suffered from indigestion. The bad taste, however, did not disappear, and a second doctor sent her to the author for immediate attention to her mouth. On examination there was found a great accumulation of tartar and several necrosed roots, quite enough to account for the bad taste. At the first visit the tartar and three lower molar roots were removed. Her medical attendant had prescribed Miller's mouth-wash. No improvement took place for some days, and at a second visit the roots of both the upper and left bicuspid were removed. Eight days after the patient returned very pleased, and said that the bad taste had vanished, and that the sense of smell which had been wanting for two years had completely returned.

II. For some months a young girl had not been able to extend the fingers of the left hand, on getting up in the morning. By passive movements the fingers could be gradually extended in the course of the day, but regular work with the left hand was not possible. The patient came to the author because she believed the muscular contraction was caused by diseased teeth. She came to this opinion because in the morning she had dragging pains in the left lower jaw, which then spread to the left arm and hand, but disappeared gradually, during the day. On

examination a very defective molar was found in the left lower jaw. This was extracted and when the patient returned after some weeks the pains were gone, and although the movement of the fingers was not quite normal, the condition was such as to lead one to expect a complete recovery.—*Deutsche Monatsschrift für Zahnheilkunde*.

Brady (W. J.) on the Treatment of Proximate Surfaces.—

First, separation, by fair means or foul, fair means preferred, but separation to begin with. Next a thorough excavation of the cavity, both front and back, till the junction line of the gold is capable of being cleansed by each movement of the lips and tongue. This extension requires to be carried further on the lingual than on the labial surface, that the filling may replace to a considerable extent the ridge upon the lingual surface, and not leave a thin feather-edge of gold joining a thin feather-edge of enamel. The gold must be well extended upon the lingual surface, or the filling fails of its perfect work just in proportion as the filling fails to extend as indicated.

Third, the cervical border be extended till it is either beneath the gum or not quite beneath it; but not in any event just along the gum line so that food lodged there will remain right along this border of the cavity. Fourth, the undercuts be made such as to weaken the tooth as little as possible, depending on the retaining shape of the whole cavity rather than on any particular groove or retaining pit. Fifth, a thorough condensation of the gold, overlapping all walls with gold. Last, and second in importance, the thorough finishing of the filling, using the burnisher on all borders of the filling, properly smoothing and polishing the filling by fine sandpaper disks or strips. Coarse sandpaper should not be used as it roughens the tooth. It would be all right if the tooth was polished again, removing all the scratches, but nobody ever does that. But burnishing the edges and polishing the surface is not finishing a filling by a long ways. The filling must be carefully shaped to give the form of an ideal tooth, correcting and improving the contact with the next tooth, and making this contact what it ought to be, not whatever it happens to be. If there has been much breaking down of a proximate surface, the interproximate space has become lessened and the interproximate tissue has been crowded out of existence. If this space has been lost, the filling must be so shaped as to restore it. The point of contact should be made as small as possible, and near the cutting edge, leaving all the space possible at the neck of the tooth.—*Extract Review*.

Kirk (E. C.) on Local Anesthetic Nostrums.—I obtained samples of ten of the various preparations most extensively known and advertised as local anesthetics for painless extraction of teeth, taking

especial care in each instance to secure original unbroken packages from the manufacturer or his agent. These I had analyzed by the professor of chemistry at the Philadelphia College of Pharmacy, Professor Samuel P. Sadtler, Ph.D., a chemist of large reputation and experience, and of unquestioned ability, especially in this field of work. His communication of results is as follows:

ANALYSES OF LOCAL ANESTHETICS.

	Non-Volatile Matter	Anhydrous Cocain Hydrochlorate from Chlorin Determinations.	Alkaloid Extracted by Chloroform.	Other Constituents.
1. Dickson's, - .	4.06	3.90	3.27	Carbolic acid, chloral hydrate.
2. Arophone, - -	12.92 (Liquid.)	1.46	1.05	Carbolic acid, chloral glycerin, oil of rose and probably alcohol.
3. Jessop's, - -	3.82	2.63	1.22	Carbolic acid, oil of rose.
4. Dorsenia, - -	0.30	0.20	0.145	Carbolic acid, camphor, and probably alcohol.
5. Weinmann's, -	5.46	5.68	3.72	Alcohol, oil of peppermint, brown color, and iodine (indicating aristol possibly.)
6. Odontunder, -	10.14 (Liquid.)	1.35	1.10	Carbolic acid, glycerin, oil of rose, and probably alcohol.
7. Dental Surprise,	1.37	1.46	1.16	Carbolic acid.
8. Barr's, - - -	0.06	none.	none.	Alcohol, solution of oils of peppermint and cloves.
9. Eureka, - - -	3.36	3.26	1.37	Carbolic acid and oil of rose.
10. Anæsthetic-Obtundent,	(Liquid.)	3.39	2.61	Carbolic acid, camphor, glycerin, oils of cinnamon and citronella, and probably alcohol.

It will be seen from this report that all of the preparations examined, with the exception of Barr's, were found to contain cocain. This exhibit becomes interesting from the fact that in some cases the proprietors either explicitly deny that their preparation contains cocain, or so word their statements as to warrant that inference.

The question then arises—is the use of cocain or its salts in the manner and for the purposes set forth a legitimate procedure under conditions where the operator is not aware of the fact that he is using cocain?

The deaths which have occurred from cocain administration are quite numerous; current medical and dental literature for the past few years has contained frequent reports of such fatalities. Moreover, the dosage under which fatal casualties have occurred has varied to such an extent that no fixed limit can be positively placed for a maximum safe dose of this drug. It has been shown conclusively that one is quite likely to frequently meet temperamental idiosyncrasies in individual cases, where even minute doses of cocain may produce the most alarming symptoms.

We have now shown by the record of analyses that the nostrums so far examined, with a single exception (Barr's), depend for their action upon the cocain they contain, and we have adduced expert medical testimony to show that the introduction of cocain into the circulation is under circumstances attended with grave danger to life; furthermore, that the conditions under which cocain may be safely introduced into the circulation are not well known, or only incompletely made out. It requires on further argument to support the assertion that the use of a drug which is known to be possessed of dangerous activities becomes culpable when its identity is disguised in the form of a nostrum, leaving the administrator absolutely handicapped by reason of his ignorance of the nature of the preparation and of the rational restorative treatment which should be applied in case of threatened danger to the life of his patient. His only resource in such event would be to treat the case on general principles, or rely on the meager directions furnished by the quack who compounded the nostrum.

The treatment of cocain syncope is a sufficiently grave and difficult matter when its causation is perfectly known, but when it occurs from cocain *incognito* it is a combat in the dark, with the chances mostly in favor of the enemy.

From the ethical standpoint, the use of this class of preparations appears to be wrong, not only for the general reason that the use of all nostrums is wrong, but in addition because they may become a menace to life. From a purely commercial standpoint the traffic in these preparations is unjust.—*Extract Cosmos.*

Ingersoll (T. D.) on The Taking and Treatment of Impressions.—Much difficulty is sometimes met with in getting a good impression of the lower jaw in the mouths of some old people. The alveolar ridge has perhaps nearly disappeared, and folds of the cheek lie upon the alveolar line; the muscles of the tongue move up and down with every movement of that organ. In such cases I have been very successful in getting good impressions by the use of a wire bow of suitable size and bent into just such form as will best prevent the cheeks and lower lip

from covering the jaw. The sides of the bow are bent downward a little to correspond with the curvature of the jaw. The use of the bow causes no particular unpleasantness, and prevents an interference of the soft parts of the mouth with the impression material, being entirely out of the space designed for the tray.

The first thing after the impression is obtained is to scrape the inner sides of the flanges,—those portions next to the cheeks; but if the flanges are not high and nearly horizontal, I would not alter them. The bottom of the groove made by the ridge of the jaw may also be scraped a trifle. After the model is obtained, to compensate further for contraction of the vulcanite, which causes the ends of the plate to approach each other a little, the lingual sides of the model may be shaved or scraped, beginning where the ends of the plate are supposed to press against the inner side of the jaw, decreasing in depth toward the front arch until the place for the cuspids is reached, or a little further if a V-shaped model is used. Success in this respect depends much upon how and where the model is altered, and upon the exercise of philosophical judgment by the artist.

Another way to increase the distance between the ends of the plate after it leaves the flask is to cut a thin piece of pine wood a few inches in length, making one end slightly tapering and just broad enough to fill the space between the ends of the plate. The front part of the denture may be softened in hot water, and the tapered end of the stick may then be pushed forward toward the front teeth one-eighth of an inch, or just far enough to separate the ends of the plate about one-twentieth of an inch, and the stick should be held in that position until the vulcanite is cold.—*Extract Cosmos.*

Shields (N. T.) on Compatibility and Incompatibility of Gold.

—It has been maintained by many operators that gold is absolutely incompatible with soft tooth-structure, but that teeth of hard structure can be filled with gold, and satisfactory and permanent results obtained. According to my practice, the first assertion is a great mistake. For example, take a large approximal cavity in a bicuspid. I always combine a large approximal cavity with the grinding-surface fissure, because if you leave the fissure or fill it separately, you place the thin structure between the two fillings in a fine condition to break, which will make one or both fillings defective, and decay will surely follow. Leave no frail overlapping edges, but break them in from the grinding-surface, and when finished the space between the teeth will necessarily be V-shaped; likewise break in the frail edges on the grinding-surface and leave not a trace of the fissure, because if the filling should end in a fissure a pit is compelled to result, and this pit will hold acids and decay will follow. When the cavity is thus prepared, the whole cavity will likewise be

V-shaped, which is exactly the reverse of the usual mechanism. Now make retaining-points at the cervical margin and in the grinding-surface, then with great care build up with cohesive gold. Build up this tooth exactly to its anatomical contour, which will restore the grinding-surface. This filling, if properly done, will finish without a flaw, and the adaptation of the gold to the tooth will be perfect. To introduce gold I use the electric mallet. Always finish your fillings artistically, from cervical margin to grinding-surface, not leaving a single infinitesimal defect for the collection of acids and at some future time sure to decay. Soft tooth-structure treated in this manner will remain good not only for two or three years, but at the expiration of ten, twenty, or thirty years the tooth will be exactly in the same beautiful condition that it was the day it left the office, unless the patient has diphtheria or some other dreadful disease where the teeth necessarily are very much neglected and strong medicines used. It is not the incompatibility of gold in a soft tooth that makes it decay, and it is not the compatibility of gold in a hard tooth that enables it to remain longer without decaying. It is simply in the first instance a case of defective workmanship—bad mechanism in the preparation of cavities, and a careless introduction of the gold. Defective work in poor tooth-structure soon manifests itself, but defective work in good tooth-structure resists longer.—*Extract Cosmos.*

Angle (E. H.) on Banding Roots for Crowning.—I think this is something that is very greatly overdone, as practiced by dentists to-day. Of course it becomes necessary in the molars and bicuspsids, and I do not know that what I say should hold good in those, only so far as making the band pass beneath the margin of the gum to the extent that many dentists do. I think that is unnecessary and very injurious. It is altogether unnecessary to band them only a slight distance beneath the gum. The principle of banding the roots for the central and lateral incisors and the cuspids is, in my opinion, decidedly injurious, in a majority of cases, producing an effect which is far worse than if it was left off. If you ask a dentist why he does it, he tells you in order to strengthen that root and prevent it from splitting. Now, roots rarely split and if they do it is usually the result of a fall or blow that will split an unsound tooth anyway. The practice of putting a piece of pure gold upon the root to strengthen it is a mechanical principle that is very weak indeed. The amount of straining that the band would endure, as usually put around there, would be almost nil. As a protection for the margin, the line between the crown and the root, I say it is unnecessary. It is well known that the line of decay is above the gingival line of the gum. Below that decay rarely takes place, and if we put our crowns on as we should, the chances of decay are very small indeed. If it is fitted

properly, done with proper care, we can make a crown that will stand and resist all the mechanical forces brought to bear against it, avoiding that unsightly appearance of gold right next to the margin. I do not care how beautiful you make that band, or how carefully you burnish it, it is unsightly, and the appearance of the gum is never perfectly normal. Now, as a proof of this, I will say that I have seen Bonwill crowns that have been on for years, that have lasted for years and years, and when broken away through accident, have seen the imprint of the stone that was used in grinding them down, and yet not the least sign of decay. I have used, with the most satisfactory results, the Low crown for these teeth. I am not advocating that crown for any financial consideration, but because I think it is one of the most beautiful and perfect principles of crowning incisors that I have ever seen, and I think it is one that will last and come the nearest to being the ideal crown. I have had a number of them on for a long time, and I have taken the trouble to remove two or three and examine to see what the result would be. I have not seen the least sign of decay, or have I seen the roots split, if the crown was put on properly, or have any accident of that kind. I am inclined to think that a band around these incisors is wrong in principle. I notice also in certain articles in the Journal that the tendency is to oppose that method, and I am glad to see it. I am glad to see that there is less tendency to have that band around the front so conspicuous. I think it is unnecessary.—*Extract Review.*

Warren (G. W.) on Crown- and Bridge-Work as a Means of Regulation Combined with Restoration.—In this response to a request for some personal experience in crown- and bridge-work, I will describe three cases which have been of more than usual interest.

A patient, of about forty years of age, an actress by profession, presented herself for examination of her teeth, which were found in a deplorable condition. The six superior front teeth were very irregular, and in otherwise bad condition; the two lateral incisors and one of the centrals were devitalized, while the other central and the cuspids were badly broken down by caries. In the lower jaw the second bicuspid and the first molar were missing on either side, the second molars had tipped forward considerably, and the third molars had never erupted; this, with the protrusion in the superior teeth, allowed the inferior front teeth to close up so as to nearly or quite touch the soft tissue of the palate just posterior to the superior incisors. The patient was very anxious to have something done that would improve her articulation, give her a better masticating surface, and improve the general appearance of the mouth for her work. I therefore decided to excise the superior front teeth from cuspid to cuspid, and put on Richmond crowns, using smaller teeth, so as

to bring them into line and correct the irregularity. But before doing this a bridge was made for either side of the lower jaw, using teeth a little longer than her own, in order to open the bite and relieve the pressure at the palatine surface of the superior incisors. The result has been very gratifying, both to the patient and myself.

The second patient was a lady some years younger. Her mouth presented as bad or even a worse appearance than the one just treated. Here an opposite condition of affairs was found in the anterior part of the mouth; that is, the lower jaw protruded, and when the mouth was closed the inferior incisors and cuspids closed over the superior teeth, so as to nearly hide them from view. On the right side of the lower jaw the first and second molars were missing, and the third molar had tipped forward so much as to be of little use in mastication. On the left side the first molar was missing, but the roots of the second and third molars were in place and in a fairly good condition. A bridge was inserted upon the right, and gold crowns upon the roots of the left side. These were all made of sufficient length to open the bite to a considerable degree, then the long, irregular cutting edges of the lower incisors and cuspids were ground off by means of a stone and polished. Upon the superior incisor roots the patient was wearing an antiquated form of crown which was removed, and the crowns of the cuspids and first bicuspid on the left were excised, and Richmond crowns placed upon the roots. The first bicuspid on the right side was a vital tooth, and was covered with a gold crown. The six front crowns were made a little shorter than the teeth the patient had been wearing, and they were inclined forward, so as to correct the occlusion and appearance to such an extent as to have them close upon the edges of the corresponding lower teeth.

The third and last case is that of a young lady of twenty-two years. When she called upon me, her mouth presented a very homely appearance, which was due entirely to the ignorance or lack of judgment upon the part of her dentist in earlier years. This gentleman through bad judgment extracted the two lateral incisors, and allowed the cuspids to come down and forward to partially take their place. Then the mischief was done. The mouth was given a very coarse appearance by the large teeth being brought so near the center, and as they did not entirely fill the space, an ugly opening was left between these teeth and the central incisors. After studying her case, decided not to extract the cuspids, but those which should have been removed in the first place,—the first bicuspid. Then with suitable regulating appliances I corrected the angle of the cuspids and drew them back so as to partially fill the space formerly occupied by the first bicuspid, and at the same time drew the second bicuspid in line, and secured them all by a retaining appliance,

which was worn for several weeks. A lateral incisor was then prepared for either side, and inserted by means of plate and pin bridges, as described by Prof. Litch in the "American System of Dentistry." The result obtained was exceedingly gratifying.—*Extract Cosmos.*

EDITOR'S NOTES.

NORTHERN OHIO DENTAL SOCIETY.

THE thirty-fourth annual meeting of this society was held at Akron, O., May 9-10-11th, 1893. A large number of dentists attended and the program was well carried out, all but one essayist responding. The discussions were interesting, instructive and non-lagging.

The Northern Ohio can boast of being one of the smoothest running societies in the United States.

Meetings convene promptly and interesting proceedings begin at once. There is no enmity among the members and consequently no quarreling or "wire pulling;" the election of officers at this meeting required but eight minutes.

Dentists who do not attend these society meetings cannot realize what they miss; there are always instructive points brought out in the discussions and private conversation that do not get into the journals at all. If there are any of our readers who have not been in the habit of attending society meetings, begin now; do not only begin attending, but join some society and engage in the actual work; it grows more fascinating each year.

New members elected at this meeting of the Northern Ohio Society were—C. B. Mower, Wooster; J. H. Brown, Wooster; T. J. Mason, Columbiana; G. E. Tribby, Willoughby; J. H. Peterson, Akron; S. D. Stewart, Akron. and L. E. Custer, Dayton.

Officers elected for the ensuing year: President, S. B. Dewey, Cleveland; Vice-President, Henry Barnes, Cleveland; Recording Secretary, F. W. Knowlton, Akron; Corresponding Secretary, J. F. Dougherty, Canton; Treasurer, Chas. Buffett, Cleveland.

Executive Committee.—J. F. Dougherty, L. L. Barber, F. D. Davis.

Membership Committee.—Grant Mitchell, N. B. Acheson, W. T. Jackman.

Necrology.—J. E. Robinson, F. S. Whitslar, and W. H. Fowler.

The next place of meeting will be at Put-in-Bay, on the second Tuesday of May, 1894.

The Akron dentists entertained the members with a visit to the Akron Rubber Works, Barber Match Works, and the Werner Peale printing establishment. Everyone seemed to enjoy himself and altogether the meeting was a profitable one.

NEW PUBLICATIONS.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE CLINICAL APPLICATION OF DRUGS. By John V. Shoemaker, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia; Physician to the Medico-Chirurgical Hospital; Fellow of the Medical Society of London, etc. Second edition. Revised. In two royal octavo volumes. Volume I., in cloth, \$2.50 net; sheep, \$3.25 net. Volume II., in cloth, \$3.50 net; sheep, \$4.50 net. Philadelphia: The F. A. Davis Company, Publishers, 1914 and 1916 Cherry Street. 1893.

Volume I. of the work before us is devoted to pharmacy, general pharmacology and therapeutics, and remedial agents not properly classed with drugs.

While it is not necessary for the physician to be a skilled pharmacist, it is essential that he should possess an intelligent conception of the methods of pharmacy and a familiar acquaintance with the physical and chemical properties of drugs. These subjects and the art of prescription writing are discussed in the preliminary section of the book, from the standpoint of the general practitioner. The different modes of application or introduction of remedies, the Latin terms and phrases employed in prescriptions, the metric system, poisons and antidotes, are also considered in this section.

In the chapter on Electro-Therapeutics one object has been

held steadily in view - lucidity. The physical properties of this force, its mode of generation, the laws which regulate its manifestation and the mechanical means by which it is applied, are described as briefly as is consistent with utility. The importance of electricity in the diagnosis of nervous affections and its value and indications in therapeutics are fully discussed. The physiological effects and the therapeutic applications of massage form the subject of a succeeding section. The importance of pneumotherapy is pointed out, and the usefulness and mode of administration of oxygen is described. The chapters on hydrotherapy climate, diet, heat, cold, and other physiological agencies, have all been rewritten.

It will thus be seen that Volume I., containing 353 pages, is of great value to the general practitioner.

Volume II. is an independent volume on drugs. The author has made some additions and alterations representing the clinical investigations relative to certain remedies which have been recently introduced. Brief accounts have been given of trichloroacetic acid, euphorin, euphene, phenocoll, piperazin, benzonaphthol, losophan, salophen, thallin, etc. The section on tuberculin has been revised to correspond with the experience of the past eighteen months, and a brief mention has been made of tuberculocidin. The use of animal extracts and juices has also been mentioned, especially the treatment of myxedema by means of an extract of the thyroid gland. Volume II. contains 680 pages. The whole work makes a treatise complete, and will be appreciated by the profession in general. The binding and press work are of a high grade, a characteristic of this well-known publishing house.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, 1892, is filled with interesting material as usual. These transactions, issued year by year, make a valuable collection of solid reading. The S. S. White Co., Publishers, have as usual left their stamp on the work, that of perfect press work and binding.

BRIEFS.

— DR. C. C. CARROLL thinks that "the rugæ have something to do with the resonance of sounds produced."

— I think sometimes that we treat teeth too long through the nerve canal after there is no trouble with the tooth at all. — *Dr. Brimmer.*

— FOR an ideal matrix take a simple piece of German silver fastened with waxed floss. You can take a burnisher and get the contour you want. I have never found any later productions that could approach it. — *Dr. Ives.*

— DR. M. Allen Starr extracted two teeth from the jaw of a patient who had suffered from trigeminal neuralgia. There was marked exostosis of the roots of the teeth, and their extracting resulted in a complete cure of the neuralgia.

— THROUGH experimenting Dr. H. C. Wood concludes that nitrous oxide produces anesthesia by cutting off the supply of oxygen and that a mixture of nitrous oxide with oxygen does not seem to be available as a practical anesthetic.

— REAMING of the portions of the canals nearest the pulp chamber may often be done with great advantage; sometimes it may be carried far on toward the foramen, but always requires close attention and watchfulness. — *Dr. Noyes.*

— NO matter how brilliant a dentist may be in professional attainment, he cannot long conceal from his fellows any dishonest propensity that may mar his character. The first element of true success in dentistry, then, as in other callings is honesty. — *Dr. Johnson.*

— WHERE the pulp has been wounded, I should simply touch it with camphor, the alcohol in the camphor will evaporate leaving the camphor itself, which is very healing and cleansing. One may follow the camphor treatment with a little oxyphosphate, or cover it with gutta-percha and go on with his filling. — *Dr. Spaulding.*

— THE question is often asked in meeting, what proportion of amalgam fillings consist of mercury? The answer nearest the

truth is that furnished a friend by a refiner to whom had been sent a quantity of amalgam of many kinds. Without detailing the assay, the quantity of mercury was given as 30 parts to every 100 of amalgam.—*Odontographic Journal*.

— DIAPHTHERIN as a dental antiseptic. In the January number of the *Therapeutische Monatshefte* there is an article by Dr. Brandt, of Berlin, in which, according to a summary published in the *Fortschritte der Medizin* for March 15th, he mentions the advantages of diaphtherin (oxyquinaseptol) for use within the mouth. While it is an energetic antiseptic, it does not irritate and its odor is slight.

— THE value of a careful and accurate study of the best means of securing immunity from diseases, both general and local, by means of suitable antiseptic and hygienic measures with reference to the oral cavity, is unquestionable. That the best means at present in popular vogue is insufficient will not be gainsaid. More light is needed in this direction. Shall it not come from our own ranks?—*Dr. Kirk, Cosmos*.

— AT one time a tooth pulp is sensitive to cold, and at another to heat. I think where they are more sensitive to hot applications that there is less chance of saving the pulps than when they are sensitive to cold ones. It seems to show that the hyperemia has gone on until it verges on congestion. There is more fluid in the pulp and in the surrounding tissue, and therefore there is less chance, to my mind, of saving the pulp.—*Dr. Robinson*.

— CHLORATE of potash and tannin are favorite drugs with many dental practitioners. A correspondent writes the *Chemist and Druggist* warning others of the danger which he himself encountered. A dentist ordered two drachms of chlorate of potash and one drachm of tannin, and when these were mixed together in a mortar there was an explosion. Incompatibility of drugs should be thoroughly understood by dentists as well as physicians.

— THERE exists a very simple method for comparing the heat conducting power of metallic bodies. The metals to be compared are shaped into wires of equal length and diameter and coated with a thin cover of stearine. When heated at one end by an alcohol flame the melting stearine drop will travel toward the cool end if the wire is held in an inclined position. The quicker

the drop travels the greater is the conducting property of the wire, and in this way it is easy to demonstrate this quality of filling materials.—*Hans Block, Tribune.*

— A filling does not necessarily need to be rocking or show discoloration around it to allow moisture to enter between it and the walls of the cavity. If you could examine the best of prepared cavities before the gold was placed in it, with a good magnifier, you would find not a clean, smooth surface, but a perfect labyrinth of flaws, scratches and pits, which would show at once that nothing but a plastic material could fill them, and certainly not gold-foil. Unless every atom of exposed surface of that cavity comes into contact with the filling material, you will have numerous catchbasins in which decay may start, and often does.—*Dr. Hopkins.*

— ANY of us who have had occasion to remove a crown or bridge, that has been in the mouth for several months or a year, as the case may be, have found in removing the oxyphosphate from the cap, a condition of things that is not desirable. The oxyphosphate seems to have absorbed everything that is applied in the mouth. It seems to me that demonstrates that oxyphosphate, or any of our cement fillings, will take up more or less of these gases, and more or less of this poisonous product or decomposition. Now if they will do that under a crown, even if the crown is pretty closely adapted to the tooth, will it not occur within a tooth, and would not the putting of a metallic substance or something similar between this cap and the oxyphosphate following, have a tendency to keep everything from the pulp itself?—*Dr. Robinson.*

— WITH exostosis, and large and divergent roots, the force necessary for their removal is sometimes equal to all the strength the operator can bring to bear, and it is unreasonable to suppose that this amount of strain can be applied without some inflammation following. Here is where the systemic condition of the patient must be considered. There are many so constituted that any wound heals readily by first intention. If no broken or displaced process has been allowed to remain to cause irritation, the place will soon heal, and will be materially aided by the use of antiseptic and astringent lotions. But in a great number of people local disturbance so severe as the extraction of a tooth of this

kind is sure to be followed by an exhibition of the inflammatory process, more or less serious, according to the severity of the operation and the systemic condition of the patient.—*Dr. Thomas.*

OBITUARY.

DR. G. C. MILLIGAN.

PLEASE announce in the OHIO JOURNAL the death of George Clinton Milligan, D.D.S., who was born in Belmont Co., Ohio, May 21, 1856, and died in Pueblo, Col., April 17, 1893. He was brought up on a farm, where he attended the district schools. He finished his literary course at Mt. Union College. About 1882 he commenced the study of dentistry under Dr. Morrison of Wheeling, Va.. He graduated at Philadelphia Dental College in 1886, and at once began the practice of his chosen profession at Wheeling, where he had built up a fine practice. In 1886 he married Miss Fannie Marsh, of Whitestown, N. Y., who survives him. Early last summer premonitions of consumption began to appear and he was compelled to abandon his practice and go in search of a more healthful climate. After spending the summer in the Adirondacs, without beneficial results, he returned to Denver, Colorado, where he had since been living. On the day of his death he started, on the advice of his physician, to seek a lower latitude at Pueblo, and died from exhaustion within an hour after reaching his destination.

G. E. F.

SOCIETIES.

NEW FINANCE RULES OF THE DENTAL CONGRESS.

OUR readers will notice with pleasure the following revised finance rules governing admission to the Dental Congress:

That a payment of ten dollars (\$10.00) shall entitle one to the Transactions and to membership, if eligible.

That a payment of twenty dollars (\$20.00) shall entitle one to the Transactions and to membership as above, and the commemorative medal.

That a payment of thirty dollars (\$30.00), or upwards, shall have all the advantages of the twenty dollar (\$20.00) subscription

and also recognition as a contributor to the financial success of the Congress.

That any student presenting a certificate from the Dean or Secretary of a reputable dental college be entitled to student membership, and also have a copy of the Transactions on the payment of five dollars (\$5.00).

DEAR DOCTOR :

As I intend to leave for Europe very shortly, all communications for the Odontological Section of the International Medical Congress had better be sent direct to the Secretary General at Genoa, Italy.

The SUBJECT OR TITLE of the paper or communication which you contemplate sending must reach the Secretary General on or before the 30th of June.

A brief abstract of every paper and communication, with its conclusions, must be sent on or before July 31st. Such as arrive after that cannot be expected to find a place on the regular order of business, and will be accepted only if time will permit.

The papers (if presented in person) must be sent by September 1st. All papers should be type written and not exceed fifteen minutes in length.

REDUCTION OF FARES.

The HAMBURG AMERICAN PACKET CO., 37 Broadway, N. Y., 125 La Salle Street, Chicago, offers a reduction of 25 per cent., both out and return, for all its steamers during the year 1893, to those attending the International Medical Congress.

The COMPAGNIE GÉNÉRALE TRANSATLANTIQUE, 3 Bowling Green, N. Y., offers the same rates which are allowed French officers, that is \$63.50 for an \$80 accommodation and \$91.50 for a \$120 accommodation.

The NORTH GERMAN LLOYD, 2 Bowling Green, N. Y., offers a reduction of 25 per cent. on Steamer Werra, which is to sail from New York on August 5th and September 9th, and on Steamer Fulda, on August 19th. Both these steamers sail to Genoa. The same reduction will be made for the return trips in October and November, on the same steamers, and for the Company's Saturday (off Bremen, Sunday off Southampton,) steamers.

The provisional committee has made arrangements with the

different companies, whereby special reduced prices have been granted on the railways of the countries which the members of Congress are to traverse.

Very truly yours,

NORMAN W. KINGSLEY, D.D.S.

New York, May 15, 1893.

ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

At the joint meeting of these societies, in May, the following officers were elected for the ensuing year :

Illinois Society.—President, Garrett Newkirk, Chicago ; Vice-President, J. W. Comany, Mt. Carroll ; Secretary, Louis Ottoly, Chicago ; Treasurer, W. A. Stevens, Chicago ; Librarian, F. H. McIntosh, Bloomington ; Supervisor of Clinics, E. A. Royce, Chicago ; Assistant Supervisor of Clinics, B. D. Wikoff, Chicago ; Assistant Supervisor of Clinics, A. H. McCandless, Rock Island.

Members of Executive Council.—E. K. Blair, Waverly ; C. N. Johnson, Chicago ; S. F. Duncan, Joliet.

Springfield was selected as the next meeting place.

Iowa Society.—The Iowa State Society elected the following officers for the ensuing year : President, Dr. L. James, Fairfield ; Vice-President, H. A. Woodbury, Council Bluffs ; Secretary, F. T. Breen, Iowa City ; Treasurer, A. R. Begun, Des Moines.

Council Bluffs was chosen as the next meeting place, the date to be the same as that of the Nebraska State Dental Society at Omaha.

A report of the meeting of the above societies will be given in our next issue.

EASTERN INDIANA DENTAL ASSOCIATION.

THE Eastern Indiana Dental Association held their fifth annual session in the parlors of the Bundy House, Newcastle, May 10 and 11. The following papers were presented :

Dentistry and Christian Science, C. J. Mendenhall, Richmond ; Country vs. City Dentist, D. C. Harrold, Elwood ; Anæsthesia, F. M. Ault, Kokomo ; Prosthetic Dentistry, J. W. Jay, Richmond.

Thursday morning was devoted to clinics. Officers elect are :

D. C. Harrold, Elwood, President; W. B. Gordon, Winchester, Secretary and Treasurer.

Elwood was selected as the next meeting place.

The following visitors were present from Indianapolis: T. S. Hacker, J. B. Morrison, W. S. Rawls, R. T. Oliver, and G. E. Hunt.

The meeting was the most successful the association ever held, the papers were above the average, and the discussion unusually thorough.

THE MISSOURI STATE DENTAL ASSOCIATION.

THE twenty-first annual meeting of the Missouri State Dental Association will be held at Excelsior Springs, Mo., July 11-12 13-14 inclusive. All dentists are invited to attend, as the meeting promises to be of great value to the profession.

UNIVERSITY OF BUFFALO—DENTAL DEPARTMENT.

THE first annual commencement exercises of the Dental Department of the University of Buffalo, were held in connection with those of Medicine and Pharmacy, in Buffalo, on May 2d, 1893.

The examinations before the Board of Curators, which comprises the Dental Examining Board of the State, lasted during the day. After these were finished, the Board held a meeting with doors closed to all, and after canvassing their merits, unanimously recommended each of the candidates as well qualified to receive his degree, which was conferred upon him by the Chancellor in the evening.

The number of matriculates for the session was forty-six. The graduates were as follows, each having presented senior tickets from some reputable institution before joining the class:

W. J. Crawford, Ohio. T. D. Phillips, New York. E. H. Lamport, New York. W. C. Smith, California. D. H. Squire, New York.

COMMENCEMENT exercises of the Dental Department Columbian University, Washington, D. C., were held May 4, 1893. Prof. H. C. Thompson delivered the address. Prof. J. C. Welling

conferred the degrees, and Prof. J. H. Lewis awarded the dental prizes. Graduates, 4; matriculates, 44.

RESOLUTIONS OF THE NEBRASKA STATE DENTAL SOCIETY.

WHEREAS, This Society has learned of the death of that veteran in our ranks, as well as in the service of our country, Geo. Watt, M.D., D.D.S.; therefore be it

Resolved, That this society bow to the will of the inevitable and express to the family of the deceased our heartfelt sympathy in the loss of one who had attained such a high position in the ranks of our profession; and furthermore, be it

Resolved, That a copy of these resolutions be placed upon our minutes and be sent to the family of the deceased, and also to the OHIO DENTAL JOURNAL.

Com. { DR. W. F. ROSEMAN,
DR. W. C. DAVIS, Cor. Sec.

LINCOLN, NEB., May 24, 1893.

OUR AFTERMATH.

TALMA, the actor, was a dentist's son.

POPULAR FALLACIES.—That lovers of the beautiful never wear false teeth. That a millionaire is n't bothered when he has the toothache. —*Judge*.

WHEN an able editor confronts a question beyond his depth he simply writes "comment is unnecessary." and lets it go at that. —*Washington Evening News*.

HIS TEETH.—"I say, Jenkins, can you tell a young, tender chicken from an old tough one?" "Of course I can." "Well, how?" "By the teeth." "Chickens have no teeth." "No, but I have."—*N. Y. News*.

GOLD is supposed to melt as follows: 23-karat, 2,012° Fah.; 22-karat, 2,009°; 20-karat, 2,002°; 18-karat, 1,995°; 15-karat, 1,992°; 13-karat, 1,990°; 12-karat, 1,987°; 10 karat, 1,982°; 9-karat, 1,979°; 8-karat, 1,973°; 7-karat, 1,960°.

WILL KEEP OPEN HOUSE.—"The house of the Columbia Dental Club of Chicago, No. 300 Michigan Ave., is open wide to the gentlemen of the profession who visit Chicago this summer, and a cordial invitation is extended to them to make it their headquarters while in the city.

If it is so desired, by addressing the Manager of our Bureau of Information, R. C. Brophy, in care of the Club, they can secure such rooming accommodations as they wish."

FRANK H. GARDNER,

Chairman Local Com. on Entertainment W. C. D. C.

POPULAR DENTAL EDUCATION.—At the recent meeting of the Northern Ohio Dental Society, a committee was selected to prepare a treatise on the care of the teeth, etc., to be used by the members for distribution among patients. With the proper enlightenment of the people on the general subject of dentistry, there will be less use for a stringent *code of ethics* in the profession.

UNUSUALLY STOUT STRANGER.—"What do you charge for pulling a tooth, Professor?"

Dentist—"One dollar."

Unusually Stout Stranger—"Charge anything extra for gas?"

Dentist (sizing him up)—"Yes, sir. I shall have to charge you \$3 a thousand feet."—*Puck*.

HE REFORMED WHEN YOUNG.—The London *Graphic* has a portrait and sketch of Potara, a Maori cannibal, who is 85 years old and still has a good set of natural teeth. He has not eaten a white man since 1816. He speaks well of white folks, but for a steady diet prefers a Maori, as the whites, or "Pakehas," have "a salty and bitter flavor." Potara must have a retentive memory of his tastes.

Mr. Hanks is a dentist in the city of New York, and has hit upon the following idea for his announcements:

<p>NANCY YANKS THE RECORD. HANKS YANKS THE TEETH.</p>
--

Mr. Hanks is all right so long as Nancy holds the palm, and is probably safe until next summer, anyway.—*Business*.

TEMPERATURE FOR MENTAL WORK.—Dr. Benjamin Ward Richardson finds, after long experiment and practice, that 64° Fahr. is the best temperature in which to conduct mental labor. If the temperature falls much below this, the mind becomes drowsy and inactive; if it rises much above this, there is a relaxed state of the body and mind which soon leads to fatigue and exhaustion. It is important that the temperature be the same in all parts of the room, and that it be steadily maintained.

SOME HAVE MORE SENSE.—Some time ago I had a young man in my chair who wore an opal scarf-pin worth \$150, and had his upper incisors filled with black amalgam. Why, did you ever stop to think that a barber gets more money out of the average man than a dentist does? The fact is, people consider every cent paid to the dentist as absolutely thrown away, or as an expense which should not be. They expect to clothe themselves properly. They expect to enjoy luxuries. They consider these expenses as natural of course, but when it comes to the teeth they are not willing to tolerate a heavy expense.—*Extract Review*.

OUR DENTAL COLLEGES are multiplying, and our graduates are ground out by thousands, where a few years ago we thought hundreds a great number. We encourage all of them that "there is plenty of room at the top." There may be for the unconscionable trickster who is ready to knock down the more meritorious that he may climb up on their backs.

Really, are our leaders doing justice to new comers? Would it not be

better to turn more than half of them back to follow the plow? At any rate, should we not require a more advanced stage of preliminary attainment?—*Itms.*

CHICAGO WATER.—A special commission appointed by the London *Lancet* to investigate the water supply and drainage system of the city of Chicago has presented a voluminous report embracing the results of number of chemical tests through examinations of the water taken from different points on Lake Michigan. The conclusions to be drawn from the report are that no objection to the use of the water as a potable fluid can be raised, providing that due care is observed in the process of filtration and that the water be cooled out of contact with ice. Regarding the practice of lowering the temperature of water by the addition of ice, the *Lancet* is of opinion that it is a foolish and most mischievous one and calculated to render futile all previous filtrations.

IMITATION OF GOLD.—One of the most perfect forms is obtained by the following process:—100 parts by weight are taken of pure copper, 14 parts of tin or zinc, 6 of magnesia, 58 of sal ammoniac, 18 of quicklime, and 9 of cream of tartar. The copper is melted, and to this are successively and gradually added the magnesia, sal ammoniac, quicklime and cream of tartar, each by itself in the form of powder; the whole is stirred for half an hour, the zinc or tin being added in small pieces, and stirring is resumed and continued till the whole is melted, the crucible being then covered and the mixture kept in a molten condition for the period of thirty-five minutes. After this the dross is carefully and entirely removed, and the metal is poured into moulds. The substance thus produced has a fine grain, is malleable, and does not easily tarnish.

THE LIBBY PRISON WAR MUSEUM.—Of the many attractions outside of the World's Fair in Chicago, there are but few in which there is so much interest centered as there is in the Libby Prison War Museum. In 1889 this celebrated prison was removed from Richmond to Chicago and converted into a War Museum. The project was undertaken by a syndicate of the best known business men of the city whose enterprise was conceived in a commercial spirit, but has attained a national reputation. To move a brick and stone building the size of Libby, more than a thousand miles, across rivers and mountains, was an enterprise that many of the best known contractors in the West refused to undertake at any price. But the move was made with success. Then the famous old structure was filled with war material that represents the work of a lifetime and the expenditure of half a million dollars. The great collection is conceded to be second to none in the country and includes much of the most valuable material that the greatest civil war the world has ever known has left to posterity. The collection includes thousands and thousands of relics of every description, many of which form important links in the history of the nation. The old building itself is fraught with interesting memories and the story of the celebrated tunnel escape of February 9, 1864, never fails to interest the visitors. One hundred and nine Union officers made their escape through that tunnel, which formed one of the most thrilling events in the history of the war.

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CONTRIBUTIONS.

PROSTHETIC DENTISTRY.*

BY J. F. STEPHAN, D.D.S., CLEVELAND, O.

WHEN this subject was assigned me, I was at a loss to know how to handle it and what I had best say of it. Finally I decided to speak of our failures.

First, let us hope that none of our professional brethren call this branch of our life work "mechanical dentistry."

It is not mechanical dentistry: not the work of an automaton, who, set to work upon prescribed lines, pursues them and turns out a finished denture, crown or piece of bridge-work. It is artistic in the highest sense and success in this branch of dentistry must be attained through study and observation of the natural organs which we are to replace.

We must note the contour of the mouth and its relation to the expression upon the face of our companion upon the street, in the street car, at the theatre, and wherever opportunity affords, so that when called upon we will be better able to restore to the face its proper expression. Our failures are due to a lack of adaptation. Success is not attained when the patient is able merely to masticate food with an artificial denture. No! The

* Read before the Northern Ohio Dental Association, at Akron, May, 1893.

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expression of the mouth and face may be so altered as to make a person, formerly beautiful, look perfectly hideous.

In the upper denture the canine eminence has not been restored leaving an unnatural expression at the wing of the nose. Dr. Barrett of Buffalo said that the man who designed the silver dollar could not have been an observer of nature, or he never would have made such a depression at this point. This is a defect which the artificial denture of to-day fails to correct.

There are slight depressions just over the superior laterals and bicusps which make the canine eminence even more prominent and should be produced on every upper denture.

An artificial gum may have been placed upon a case having very full gums. The lip looks thick and puffy and often the patient is unable to wear the plate. In such a case the anterior six teeth at least, must be set against the natural gum so as to give the natural contour to the mouth. If the artificial gum is allowed to run too high under the upper lip this fullness is also apparent and the plate must be cut down at that point.

We are beginning to-day to look upon the artistic adaptation of the artificial denture as most essential to its success.

A denture may lack mechanical adaptation if not properly trimmed. If allowed to ride upon the muscles it will make them sore, and will be displaced every time the mouth is opened. If the bite in a full (upper and lower) denture is very much too long, the patient will experience difficulty in swallowing.

When the impression and model have been properly trimmed i. e. the impression is trimmed to relieve the hard parts and the model to cause the plate to press upon the soft parts of the mouth, there is no need of a vacuum or air chamber for the plate's retention.

However, when this is required so that the patient may more readily learn to use the plate, the impression is merely trimmed for a vacuum relief. This does not destroy the shape of the mouth as the old fashioned air chamber does. A fine hair-line drawn across the heel of the plate will assist greatly in keeping it in position.

Lower dentures should be made so as to give the greatest possible tongue room. The buccal portion should not be cut perpendicularly, but should be thickened so that the cheek can fall over them and aid in holding the plate in position.

Don't be afraid to thoroughly round and polish the edges of all plates, so as to avoid irritation of the mucous membrane. I wish to emphasize this point, as it is very important and is so often neglected.

In antagonizing the teeth, a little space judiciously given, will often tend to a more natural appearance. In trying to avoid regularity in setting the teeth, it is difficult not to produce a deformity.

The superior lateral should be a little shorter than the centrals and perhaps a little out of line. Of the six anterior teeth the cuspid is most prominent, especially at the neck and is placed under the corner of the mouth.

The bicuspid drops a trifle inside the range of the cuspid, and the molars follow in almost a straight line toward the angle of the jaw. You can readily see that with this arrangement, when the patient opens his mouth he does not show a mouthful of teeth as is so often the case where the teeth are set in a continuous curve.

The upper anterior teeth should overlap the lowers but very slightly, only so much that when the latter slide forward they will just touch the cutting edges of the former. It is a common mistake to let them lap too deeply and the result is the upper plate is continually tilted.

The inner cusps of the bicuspid and molars should strike the heaviest, a little heavier, if possible, upon the bicuspid rather than the molar.

We fail to make perfect crowns inasmuch as we fail to properly fit the root and contour the crown. In order to properly fit a root, the enamel must be removed, or at least the sides must be cut parallel. The root being prepared, a measure is now taken in silver suture wire, burnished into every depression and carefully removed. With knife and file a wooden form is cut, preferably of hickory, to fit this measure which, when finished will be exactly the shape of the root. The wire is cut, the band made and carefully fitted to the wooden form. A band made in this way must necessarily fit the root when carried to the mouth. We are able to use pure gold for the ferrule or band, by using these wooden forms, for, if it should be bent during manipulation, it is carried to the form and again given the proper shape. It can be given an extra stiffness by burnishing while on the form. If the band is placed

upon a wooden form or mandrel and the thumb is placed firmly against it the band will be contracted by burnishing toward the thumb. None but pure gold will admit of this treatment. As pure gold is so easily adapted to the irregularities of a root, this method of fitting is very desirable. The band is now adjusted to the root, trimmed to conform with the curve of the gum and to receive the antagonizing cusp. Give it the proper contour, with contour pliers or anvil, so as to preserve the interproximate spaces.

There is but one porcelain faced crown, which seems to attain all the requirements of the ideal crown. This is the Case-Richmond, described by Dr. C. S. Case in the *Review* for Oct. 1890.

The root of any one of the six anterior teeth is dressed in conformity with the curved border of the gum, the labial edge slightly beneath the gum, while the palatine may be cut only to the palatine prominence.

After the enamel has been removed and the wooden form made as before, the band is cut so that when in place upon the root it shall extend one-half the length of the required crown. Mark a scallop upon the labial side, extending even with the gum and on the lingual even with the end of the root. Cut these out, replace the band upon the root, and dress down with a corundum wheel, until the labial edge is a little below the gum margin. The proximate extensions are left to fall along the sides of the porcelain front, to give it extra strength. A piece of thin platina is bent into and soldered to this curved surface, the surplus trimmed off and the band finished.

You now have a band that offers the strongest possible attachment to the root, and is hidden from sight when properly fitted with a porcelain front. It can be easily and successfully used as a base for the Richmond, Ash, Case and Logan crowns. When placed on the root the labial border should pass just below the border of the gum. The root is prepared for the pin or screw: a hole punched in the cap and the cap and pin placed in position. An impression and bite is now taken and the antagonizing models made. The bite may be taken in modelling compound which gives a clear outline, and lessens the liability of its bending out of shape. The patient is instructed to press the tongue against the compound, while with the finger you press it to its place. The proper porcelain facing is selected, ground to place, backed and soldered to its proper position.

Do not leave overhanging edges to catch food, but dress the porcelain down even with the band and polish. If you desire to make a crown of the Ash and Son's tube tooth, the proper porcelain is selected and carefully ground to the curved surface of the band. While in position, mark and cut the hole for the post. Place the cap upon the root, and bore through this hole into the canal. Put the post into place, bending it if necessary, so that the tooth takes its proper position. Take an impression in plaster and solder the cap and post together. Re-fit the porcelain, roughen the surface of the cap and lute the whole together with jewelers hard white enamel. Invest, fuse the enamel and finish. This makes a most beautiful and easily constructed crown. If the jeweler's white enamel is finely pulverized, and mixed properly with water, when laid over a crevice with a wooden toothpick or camel's hair brush, will pass into the smallest space.

In the construction of porcelain front bicuspid and molars, the measure is taken and wooden form made, as in the all-gold crown. The root should be cut as for the anterior teeth, and the curve reproduced on the wooden model. The gold is cut the same as for the Richmond all-gold crown. By the aid of the wooden form you are able to mark a flap, which, when partially cut, curved to fit the curve of the root, and turned in upon the model, its sides will touch the proximate sides of the band, to which it is ultimately soldered. The flap should extend on the face of the root only so far as the backing of the porcelain face. The band is adjusted to the root, and an impression and bite taken. Antagonizing models are made, the porcelain face ground to place, backed, and if sure of the alignment, is soldered to its position.

In this process the porcelain should be invested and the soldering done through the loop made by the band. The band is again placed upon the antagonizing model, and the cusps fitted. The whole is then invested, soldered and finished. In this crown there are no large spaces filled with solder. The solder is only used to close mechanically the fitted joints. The post need not be soldered to the crown, but may be anchored in the palatine canal.

These crowns being similar in construction to those for the anterior teeth completes a system, which lessens the bewildering variety of methods practiced to-day.

LITTLE THINGS.*

BY W. H. WRIGHT, D.D.S., BRANDON, VT.

IT is not necessary to remind you that attention to little things is not the only condition of success. The great and the little are not to be confounded or confused. A narrow vision may miss the vital point as well as one too general in its range. A fussiness about details, simply because they are in some way related to our subject may unfit for the expenditure of energy at the point where it will do the most good. But bearing this in mind, and exercising ordinary common sense, we may apply this principle in our practice with most gratifying results. Even when this concerns only what is accessory to the main work, it is still worthy our attention. It should be our principal ambition to do the best possible work in our profession and this cannot be done without attention to details each little in itself, but which together make perfection.

While it is of minor importance, it is yet well worth our endeavor to avoid the infliction of all unnecessary pain. This may be a temporary matter, soon over, but not so soon forgotten by the sufferer, as we would imagine. He may blame us for the pain, while he appreciates the good work done. Good work is what he demands, and what will redound to our credit. But our patients will recognize the kindness and skill of a deft hand, reducing pain to the lowest possible point. It is human to shrink from pain, and there is no one who will not submit more readily to treatment by one who is careful in this matter. Ability to do this argues a nice attention to little details, a skilled hand, as well as a kind heart, which will amply reward one who cultivates the habit of considering nothing little which adds to the comfort of the patient. The best illustrations of my unambitious subject will be found on the beaten path of daily practice rather than in those exceptional cases which, by their very rarity, put the practitioner on his mettle and induces the greatest care.

It is a small thing after the patient is seated in the operating chair, in a highly excited and nervous state, to have an impression taken for an upper plate, that the operator saturate a piece of

* Abstract of a Paper read before the Vermont State Society, March, 1893.

cotton with cocaine, and direct him to place it on the tongue and move it over the roof of the mouth. This will enable him when the impression-cup is introduced, to bear it without discomfort, that the cup shall remain in place until the plaster hardens; and will prevent the retching and possible vomiting, which sometimes in patients of a sensitive stomach, renders the operation both painful and liable to complete failure. Attention to these minor points often aids the operator as much as it relieves the patient. Again, in opening the vulcanizer, if we have used a "Whitney," needless effort may be avoided by a little forethought and our patience and our temper both be improved. If instead of the old methods in which perhaps we have jammed our hands, and have felt like breaking a commandment, we have a long handled malleable iron wrench, which a village blacksmith can make, for the top of the boiler, and place this in position and lay the vulcanizer on its side on the bench and hit the long handle of the wrench a smart blow or two with a hammer, the work is done without friction to hands or feeling.

It will make much difference with our patients, especially the little ones, if we have so kindly a remedy, so wide in the range of its usefulness, as Phenacitine. This is especially valuable with children in cases of mild febrile reaction of childhood, which arises seemingly from slight intestinal irritation, and which is so common during the eruption of the teeth in infants. It will be found to be most soothing in its influence when administered in doses of from two (2) to four (4) grains, according to the age, once in three hours. Generally it induces grateful and refreshing sleep, and that moist condition so much to be desired. Slight irritations may thus be subdued, which, if unrelieved, may prove to be quite serious. We should not lose sight of the value of lancing the gums over the approaching tooth, to relieve the pressure on the sensitive nerves, and thus kindly aid nature in its task of bringing a new tooth into the world of dental usefulness.

I have also found it extremely useful in adult cases where the patient was suffering from acute alveolar abscesses, with all accompanying febrile and distressing symptoms—loss of sleep and general nervous irritability. I have used with great satisfaction to my patients, in doses of from five (5) to seven (7) grains, repeated once in three (3) to four (4) hours. The result has been to induce sleep and to reduce the temperature.

Phenacetine is certainly one of the most valuable and one of the safest of the products of the coal tar series which are in use to produce hypnotic effects. It is much to have in our hands so good a substitute for quieting pain, instead of resorting to the hypodermic injection of morphia, inducing in many cases a habit which eventually wrecks the poor victim. I give some examples of the way this new antipyretic acted with my patients. The wife of a "druggist" writes me as follows: "I deem it a pleasure to speak a good word for Phenacetine, as it has proved a very safe and certain drug in relieving severe neuralgic pain, as well as allaying high fever and intense nervousness in my little son, five years of age, after having two large teeth extracted. He is of a highly excitable temperament and inclined to spasms. The second night after the teeth were out his sleep was troubled, high fever, moanings, with twitchings of the muscles. Fearing a fit I carefully aroused him about midnight, and followed the directions of our dentist, by giving a four grain Phenacetine powder. The effect was more than satisfactory; in a short time he was in a gentle perspiration and sleeping quietly. The succeeding nights gave four grain powder upon his retiring, and thus secured perfect rest without serious after effects. In my own case it was none the less beneficial. After suffering twelve (12) hours with neuralgia of the face, caused in part by a diseased tooth, I took two five grain tablets, allowing thirty (30) minutes between them. What narcotics and chloroform did not do, Phenacetine quickly accomplished."

Another case. In October last, Mrs. S. B. L., came to me for treatment, suffering intensely from an ulcerated lower bicuspid. Had not slept much for several nights. Inflammation extended to the cheek, ear, and eye. As she resided too far away to receive daily local treatment, I applied usual remedies locally, and prescribed five (5) grain Phenacetine tablets. After taking two she was entirely relieved and had no further trouble, and subsequently the tooth was filled and is doing good service. Again in the latter part of February I fitted two crowns on to old roots. She went home suffering much from inflammation of the gums. She was obliged to take two tablets for three nights, and has had no trouble since. There is no question in my own mind that we have in this new agent a very valuable assistant in fighting inflammatory action met with in our practice.

But a paper on little things should not be allowed to grow to tediousness, for that is not a small matter in a world where there are so many sources of worry. Having indicated sufficiently the value of attention to minor matters, I must leave to your good judgment its application. It may be a slow, but it is a sure way to the best success. The aggregation of these little acts will make the difference between the finished workman and the shiftless practitioner.

A great painter was once asked why he spent so much time upon the trifling parts of his picture. He replied, and there is wisdom as well as wit in his words, "Because perfection is made up of trifles, and perfection is no trifle."

THE ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

Special Report for THE OHIO DENTAL JOURNAL.

THE twenty-ninth annual meeting of the Illinois State Dental Society and the thirty-first annual meeting of the Iowa State Dental Society were held at Rock Island, Ill. and Davenport, Iowa, May 9-12, 1893. The sessions were held jointly. The membership of each of the societies was well represented. The papers and discussions merited more than usual credit. The clinics were good, but somewhat lacking in quantity, as many clinicians failed to put in an appearance.

The meeting was an unusually pleasant one and the members of both societies feel themselves indebted to the dentists and citizens of the three sister cities Moline, Rock Island and Davenport, for their kind hospitality. We present a report of the meeting:—

FIRST DAY—TUESDAY, MAY 9, MORNING SESSION AT DAVENPORT.

The Illinois State Dental Society arrived at the Masonic Temple, Davenport, at 10:45 A. M.

Dr. W. O. Kulp, Chairman of the Executive Committee, Iowa State Dental Society, introduced the members of the Illinois State Dental Society. Dr. L. K. Fullerton the President of the Iowa State Dental Society then made the address of welcome. The mayor of Davenport then gave an address welcoming the society to the city of Davenport.

These addresses of welcome were responded to by Dr. E. K. Blair, President of the Illinois State Dental Society.

The report of the committee on Dental Science and Literature was then read by Dr. T. L. Gilmer of Chicago. The report was discussed by Drs. W. A. Stevens, Chicago; E. Noyes, Chicago; Hans Block, of Dresden, Germany; Steele F. West, Iowa City; A. W. Harlan, Chicago.

FIRST DAY—AFTERNOON SESSION, AT ROCK ISLAND.

The joint session was called to order at 2 P. M., by President of the Illinois Society. Invocation.

An address of welcome was then delivered by the mayor of Rock Island. The response was made by President L. K. Fullerton of the Iowa State Dental Society. Dr. Blair then relinquishing the chair to Dr. Fullerton.

Dr. J. E. Cravens of Indianapolis then read a paper entitled :

IMMEDIATE ROOT FILLING.

“Is immediate root filling advisable :

- 1st. After heroic extirpation of live pulp?
- 2d. After removing devitalized pulp?
- 3d. After removing putrescent pulp?
- 4th. Where there is a peridental membrane abscess, with fistulous opening?
- 5th. The same without fistulous opening?
- 6th. What preparatory treatment should each condition receive, and with what materials should roots be filled?”

I take it that if a pulp were permitted to finish the task it sets out to perform, there would eventually be no canal to vex or make us afraid. And how is this self-sacrificing process arrested?

1st. By development of apical cementum, that so constricts the pulp at that point that its vital power is reduced, and the activity of odontoblasts is arrested. Thus the development of regular denture is checked.

2d. By violence; by external irritation; by drugs applied to devitalize the pulp; by death from any cause.

3d. By “heroic extirpation of the pulp.”

1.

In this third proposition we are brought to consider the first of the series of interrogatories. By “heroic extirpation of live

pulp," presumably is meant the forcible dislodgment of the organ. A live pulp has been pulled out, a minute artery and vein has been snapped into within, or just external to the apical constriction; naturally a slight hæmorrhage ensues, sometimes quite flooding the canal, rarely more than this. All hæmorrhages have an ending, and blood is easily removed, even from a root canal. Dry the canal by any means you may see proper, and proceed to fill with whatever material and by whatever method has been most effective in your hands. I can conceive of no possible beneficent effects to be anticipated from the introduction of medicinal agents into a root canal, once or twenty times following extirpation of a live pulp, unless, perhaps, for the checking of persistent hæmorrhage, a rare emergency.

To the first interrogatory I will answer, yes! and claim the privilege of explaining that I do not favor the practice of "heroic extirpation" of live pulps, consequently do not pursue it.

2.

"IS IMMEDIATE ROOT FILLING ADVISABLE, AFTER REMOVING DEVITALIZED PULP?"

In the removal of a devitalized but non-putrescent pulp the same apical hæmorrhage may be observed to follow as in extirpation of a live pulp. The separation of the dead from the living within, or at the apical constriction, may be attended apparently with the same degree of pain in both cases; but the introduction of a broach into, and its passage through the devitalized but non-putrescent pulp, while occasioning some pain, is far less painful than the penetration of the live pulp to an extent essential to accomplish extirpation.

Usually I find no occasion for extirpation previous to incipient putrescence unless there shall present an emergency. My position as to the second interrogatory is that the removal of a devitalized pulp that is non-putrescent leaves the canal in practically the same condition as after the extirpation of a live pulp; therefore, my practice would be precisely the same as to the immediate filling of the canal.

3.

"IS IMMEDIATE ROOT FILLING ADVISABLE AFTER REMOVING PUTRESCENT PULP?"

What is a putrescent pulp? In short, a dead pulp in which

decomposition has begun. By decomposition there is a watery degeneration of a pulp, and generation of sulphureted hydrogen within the cavity occupied by the pulp.

What effect such degeneration can have upon the surrounding dentine, I am at a loss to discover. Often we observe that pulps have died from some unknown cause and given no sign. Evidently in such obscure cases the usual course of decomposition must have transpired; the complete maceration of tissue and final resorption effectually removed all traces of pulp, and we found the canal empty, even dry and almost inodorous. In such cases the tooth has perhaps retained a natural color; no fistula indicates abscess; all outward appearances indicate a live, healthy pulp. It is useless to speculate upon what becomes of the gas and macerated tissue in such a case. Does it appear in the surrounding tubuli? If so, why does not discoloration of dentine ensue? But Prof. Miller, of Berlin, says in effect, that the tubuli regain their original organic contents after death of a pulp, and are not accessible to antiseptic fluids introduced into the canal. If this be true, why should the tubuli be permeable to the fluids resulting from decomposition of the pulp in the canal? And suppose, for sake of argument, that the water of decomposition may be, has been absorbed by tubuli; what has become of the sulphureted hydrogen also generated in the canal? Does any one suppose that the gas has also been absorbed by the little tubes? And if the sulphureted hydrogen were so absorbed, is there any medicinal or purely chemical agent that can be appealed to for the removal of the gas from dentine? Iodoform may be introduced into a canal and cover up the odor from sulphureted hydrogen, because iodoform can outsink any gas under the sun.

A platinum wire may be introduced into a canal and heated by electricity; a very effective way to dry the walls of a canal, certainly; but the odor of scorched bone is scarcely preferable to sulphureted hydrogen emanating from a pulp canal. Any solid substance introduced into a canal would displace any gas found there: the platinum wire would do this without being heated, but the odor would remain. The odor of sulphureted hydrogen will cling to a glass tube through which it has been passed. After all, what deleterious effects are to be anticipated from the odor that clings to the walls of the canal from which a putrescent pulp has been removed?

After removal of a putrescent pulp, I would dry the canal and immediately and permanently fill it.

4.

"IS IMMEDIATE ROOT FILLING ADVISABLE WHERE THERE IS A PERIDONTAL MEMBRANE ABSCESS WITH FISTULOUS OPENING?"

On this point permit me to quote from an essay on "Management of Pulpless Teeth," read by me before the Ninth International Medical Congress, Washington, D. C., 1887. "A fistula may be depended upon to accomplish all necessary drainage of pus from the cavity of an abscess after closure of the apical end of the pulp canal. When no more pus shall be formed, the fistula will disappear for want of exercise." "A fistula is the dentist's friend and best ally; it accomplishes drainage of pus and thus relieves the pulp canal of a pernicious service." "A fistula from an alveolar abscess should never be interfered with in any direct manner, but should be encouraged to perform its good offices and will certainly disappear when its task is done."

In answer to the fourth interrogatory, I hold that immediate root filling is advisable where there is abscess with fistulous opening.

5.

"IS IMMEDIATE ROOT FILLING ADVISABLE WHERE THERE IS PERIDONTAL MEMBRANE ABSCESS WITHOUT FISTULOUS OPENING?"

If I correctly comprehend this interrogatory, it refers to what is commonly termed "blind abscess."

Be kind enough to indulge me in another self-quotation bearing upon this point: "Diagnosis of blind abscess of alveolar process is largely guesswork, because the single item of a wet canal does not prove the presence of pus, nor the existence of an abscess cavity. When blind abscess exists, the accumulation of pus is so very slight that it will cease altogether after the cause has been removed by closing the apical end of the pulp canal. In nearly all such cases, prompt closure of the apex will be followed by no noticeable inflammation, if proper care be observed in manipulation within the pulp canal."

In all cases "the apical end of a pulp canal should be permanently closed as soon as the canal is *laudable*—that is to say—as soon as *free from pus* or other fluid, and *all obstructive matter*." "*A clear, clean canal is always laudable.*"

In reply to interrogatory five, I would remove all obstructive matter from the canal, absorb moisture from it until no more appears, and immediately permanently fill the canal, feeling assured that the operation "will be followed by no noticeable inflammation," if proper care has been observed that nothing has been forced from the canal through the apical constriction.

6.

As to the sixth interrogatory, I have given *ad seriatum* my opinion as to "*what preparatory treatment should each condition receive,*" and in closing with consideration of "*with what material should roots be filled?*" will state that I am a stanch believer in the efficacy of gutta-percha dissolved in chloroform, or what is better, a thin batter of oxychloride of zinc, either to be forced home with gutta-percha points. As a precaution against either preparation mentioned being forced through the opening of the apex of the root, if a canal is fairly penetrable I first close it at the apical constriction with a slender ribbon of thin tin foil.

If a canal is too narrow or tortuous for free manipulation, I omit the ribbon, and trust to careful manipulation to avoid forcing the gutta-percha solution or oxychloride batter through the apical opening. *Beyond the apex—danger lurks.*

I hold that immediate root filling is advisable, and am content to leave measures and materials to men.

The discussion was opened by Dr. A. W. Harlan, Chicago; G. V. Black, Jacksonville; Edmund Noyes, Chicago; Geo. D. Littenring, Bloomington; I. P. Wilson, Burlington; L. C. Ingersoll, Keokuk. The discussion closed by Dr. Cravens.

(To be continued.)

ALL SORTS.

Gabell (W. W.) on an Unerupted Canine.—Patient, a woman 47 years of age. The history was that, ten years ago the patient had been troubled with gatherings after the extraction of the first bicuspid, at the time attributed to a possible remnant of the tooth. Four years ago patient came to the hospital with what was then diagnosed as "alveolus laid bare by the pressure of a lower denture," the case being eased the trouble ceased. Lately another bone-like projection appeared behind the incisors, and the old one having increased in size, pain was again

caused by the pressure of the case. Diagnosis was at first difficult, owing to the tartar present, until the two projections were shown to be connected, and to be the ends of a lower canine lying horizontally in the jaws.—*Extract Dental Record.*

Troubles of Dentition.—In the *France Medicale* there is reference to Gilbert's recent paper upon the foregoing subject, which embraces an analysis of observations made upon one thousand children artificially fed, and upon five hundred infants naturally nourished. The author concludes that children brought up on the breast are almost entirely free from diseases attributed to dentition, only two of the five hundred showing any such abnormality. But among the other one thousand there were fifty-eight cases of simple stomatitis, one hundred and thirteen of ulcero-membranous stomatitis, and twenty-eight cases of convulsions. Dentition is never properly accomplished without the act of sucking the maternal nipple, which favors the physiological waste of the gums. There is no such thing as diarrhea due to dentition.

Humby (W. R.) on Experiments in Annealing Gold.—Commencing at the boiling point of water, he proceeded to see if he could spoil the working properties of gold by raising the temperature; he found he could not. He then adopted the melting point of tin (440°), and tested the gold at intervals of five minutes up to thirty-five minutes; the cohesive property remained uninjured. Various experiments at increasing temperatures were made, concluding with a piece of platina raised to a bright red heat, with the result that, with one exception in which the cohesive property was slightly lost at first, but afterwards returned, the gold retained its working properties. In his opinion it was not the heat but the peculiar treatment which affected the cohesiveness of gold.—*Extract Jour. Brit. Asso.*

A Warning concerning the Chloride of Ethyl.—In the *London Lancet*, Dr. H. Radcliffe Crocker calls attention to the fact that the vapor of chloride of ethyl when inhaled is not altogether free from injury.

Having occasion to scarify a small patch of lupus erythematosus on the nose of a young lady, the writer thought it a favorable opportunity to try a chloride-of-ethyl tube. The spot was frozen well enough, but the patient turned pale, slightly livid, and stopped breathing, looking very like a person under oxide gas. As the ethyl was at once taken away, she recovered in a few seconds, but Dr. Crocker states he will certainly not use it again to any part of the face where it is possible that the vapor can be inhaled. Chloride of ethyl applied by means of a tampon is far safer and easier, but care must be taken not to over-freeze the skin or a dermatitis may be set up.

Brimmer (Dr.) on the Fusion of Gum Sections.—The teeth are ground up and articulated the same as any other case, with this provision, that they must have wide V-shaped joints to allow for the rapid flowing of the flux or enamel. Then after the teeth are arranged in position and articulated properly, there is an investment with half plaster and half asbestos. After this has hardened and dried sufficiently, a little platinum wire is laid across the platinum pins, and that is fused with the blowpipe, which gives it an added strength. Then take that and the skeleton and invest the joints with this enamel material, putting it in the oven, or rather on the slide. There are three different movements in the gradation of the heat, as it gradually comes to the fusing point. The slide is left in the first position about three minutes, and at the end of three minutes it is raised one-third more of the distance, and at the end of three more close it. When you get it in the oven allow it to remain there fifty-five seconds. This same operation with gas will take about five minutes, so you can see there is quite an item in the amount of time saved. This operation gives quite a respectable appearance to a set of teeth on rubber. It gives the plebian base quite a patrician appearance, and it has almost the appearance of continuous gum.—*Extract Review.*

Frederichs (P. J.) on The Principles Involved in the Correction of Irregularities. The importance of continuously wearing the retaining plate cannot be too strongly impressed upon the mind of the patient who has just undergone the pain and inconveniences attending the regulating process. It depends upon the faithful wearing of this plate if any permanent benefit and success is to be realized. The principles involved in the reduction of irregularities may be reduced to this simple statement :

1st. An appliance to meet the requirements of each individual case.

2nd. Its attachment in such a way that the necessary force can be applied to the teeth to be moved.

3d. An appliance which will keep the teeth in situ until there is no further tendency to change position.

There is one other important thing to consider, and that is the age of the patient. In my opinion, no general regulating should be undertaken, until the cuspids have made considerable progress in eruption. By this time the changes which still take place are reduced to a minimum, and can therefore interfere but little, or retard the work to be accomplished.—*Extract Sou. D. Jour.*

Guilford (S. H.) on Annealing Gold.—The extent to which annealing may be advantageously carried depends on the thickness of the

foil and the manner in which it is to be applied. In the heaviest grades of rolled gold intended to be used on or near the surface, or where the entire filling is to be made from it in large and accessible cavities, the gold may be heated to a dull red color, and the greatest degree of cohesion thus imparted to it without interference with its working properties, for it is intended to be laid layer by layer in a comparatively even and regular manner.

With the lighter grades of foil, prepared in the form of twisted ropes or folded ribbons, for use in less exposed cavities and throughout the filling where the same evenness of surface cannot be maintained, so great a degree of annealing would seriously interfere with the proper working of the foil, without conferring any real advantage. It has, therefore, been found best to give to the lighter foil, which is used throughout the body of an ordinary filling, only slight cohesiveness, reserving the greater degree for surface work, where more perfect cohesion is required. The semi-cohesive variety of foil, which does not unite on casual contact, but will allow one surface to glide over another without interference, and which only becomes united under pressure, is the kind best adapted for the main portion of all ordinary or medium-sized fillings. When nearing the surface, the same gold slightly annealed will give to the filling that uniformity of texture and density so necessary to usefulness. —*Extrac Inter.*

Francis (C. E.) on an Interesting Case in Practice.—I have an incident of office practice which I think worth relating. A middle-aged lady came to me to seek relief from pain caused by a diseased second inferior bicuspid. Her face as well as her gum was very much swollen, and had been in that condition for some days. The tooth contained an amalgam filling on its posterior surface. I drilled through the pulp-chamber and cleansed the root as well as I was able, using peroxide or hydrogen, which caused bubbles to exude in great profusion. By making applications to the face and gum, I succeeded in reducing the inflammation and so rendered her quite comfortable, but the trouble soon after returned. I treated it again, and it once more seemed all right. In the meantime, she visited Washington and was absent some weeks, but had no trouble while away. This all occurred just previous to the time that Dr. Thomas, of Philadelphia, read a paper before this society on the extraction of teeth, and I then decided that if this patient had trouble with her tooth again I would advise its removal. This proved to be the case, and, at my suggestion, she went to Dr. Hasbrouck and had it extracted. He gave her the tooth to show me. It was necrosed at the apex. There is an incident connected with this that I wish to state. The lady was under treatment for partial deafness. A few days ago she

called on me and remarked, "My physician says that my deafness is fifty per cent. less than it was before I had the tooth out." Her aurist felt convinced that the presence of this diseased tooth had aggravated the disease.—*Extract Inter. Dental Journal.*

Gilmore (F. S.) on Filling Teeth.—A gentleman whose upper molars and second bicuspids were gone, called to consult me in regard to the eight remaining anterior teeth. I found them worn down about three-thirty-seconds of an inch, and very sensitive. I repaired them as follows:

With a retaining point drill I made a hole on each side of the pulp in the cuspids and incisors, and about one-quarter of an inch deep. A piece of 24-karat plate was burnished to fit the worn and irregular surface of the tooth. The position of the holes showing in the gold, a pointed instrument was forced through, and pins made of platinum wire long enough to project a little were inserted.

The gold remaining in place, a piece of stiff wax was made to adhere, and trimmed to exactly represent the tip to be supplied. This was removed with the gold and invested in Teague's Compound, gold down, the investment covering the wax up to the cutting edges. Melting out the wax I fused the plate scrap in mold till it was a little more than full, and while it was in a molten state pressed it quickly with the blade of a spatula. This caused it to take the exact shape of the wax model. With but little dressing it was a perfect tip. I prepared six of these, and for the bicuspids I made shell crowns.

Placing each piece and the crowns in position I took an impression, and transferred them to a plaster and asbestos model. With 20-karat solder I tacked them all together on the palatine surface. The piece was set with gutta-percha, so far it seems perfect. The work looks as though it had been built up in the usual manner, and it took but five hours to do it.—*Items.*

Peterson (F.) on Clonic Spasm of the Muscles of Mastication.—Patient a woman, aged fifty-seven, who six years before had had all her upper teeth removed and artificial ones put in. The first set did not fit well, and a new one was substituted. The work about the mouth, and the necessity for keeping her mouth open for long periods of time while she was in the dentist's chair, resulted in the development of this spasm. When she was sitting quietly, not using the jaw muscles, there was a continuous clonic spasm of the masseters, temporals and pterygoids. The jaw opened and shut slightly and moved from side to side. She was tired and worn out with trying to keep her teeth together. The chief difficulty, however, was when she attempted to speak; then the mouth

opened wide and there was a subluxation of the jaw downward and forward from the glenoid cavity. During the first six months the mouth would not close at all, except at night, when the spasm relaxed.

Dr. Peterson says that while clonic spasm of the masticatory muscles or trismus was quite a common symptom, the condition presented in this case was very rare. As regarded treatment, atropine, hyoscine, conium, and electricity had been used perseveringly without any special effect. Latterly sulphate of duboisine, in doses of one two-hundredth of a grain, three times daily, had afforded much relief by quieting the spasmodic movements almost wholly at times. In addition she wore an apparatus made especially for her, which kept her jaw closed and allowed her to talk between her teeth without the uncomfortable clonic spasm of the depressors of the jaw, although the chronic movements of the masseters and pterygoids might keep on as before. The movements ceased at night. The affection had lasted nearly seven years.

Baldwin (H.) on a Method of Repairing Bridge-work by Soldering within the Mouth.—Mr. H. Baldwin described a method of repairing bridge-work by soldering *within* the mouth. He adopted the plan for attaching fresh porcelain teeth to bridge-work, or fresh crowns to Richmond crowns, and similar processes of that sort. After several unsuccessful experiments with the blow-pipe, he adopted the simpler plan of using an ordinary soldering iron of small dimensions, and found that it was possible with very fair ease to attach crowns by means of ordinary soft solder, or with special easily fusible solder in difficult cases; the latter is to be obtained from vendors of watchmakers' appliances, under the name of "pearl solder," and fuses at a very low temperature indeed. His method was to take a tooth and back it with a very thin, or ordinarily thick back, and then to tin the surface and the back of the tooth out of the mouth, and then to tin the gold and platinum back which is still fixed in the mouth. It was important to keep everything dry, by means of rubber dam if possible, and it was a good plan to tack an asbestos twist round the space about to be soldered. Having got the work clean and dry, the tooth had to be placed in position, the soldering iron heated, and with a little of the solder upon it made, to touch the junction of the two backs, and almost instantly the effect was such that it ran through and soldered the teeth tightly on.—*Extract Dental Record.*

Steele (W. H.) on Useful Hints.—Of course articulating paper is a cheap article, and will hardly pay one to make it for the money saved; but occasionally we get caught when it is needed, and we have not the time to order. For black paper, use finest lamp black mixed with refined unsalted lard, to which has been added (for flavoring) a few

drops of oil of gaultheria. This colored paste is to be thoroughly rubbed into the paper with a piece of white flannel. After enough color has been absorbed, take a piece of *clean white* flannel and rub till all color ceases to come off. "Copying tissue" makes a nice paper for the purpose. If medium tough paper is treated as above it is very useful for making duplicate copies of orders, letters, etc. The sheets of colored paper being placed between sheets of fine linen writing paper, and written on with a hard lead pencil, gives two or three copies at one writing.

Articulating Paste.—This can be made by using the same colors as in making the paper; the colors being rubbed up with lanolin instead of lard.

Laboratory Pads and Holders.—Pads and holders that are non-conducting and will not scorch are very convenient when soldering, baking, etc. These can be easily made by any dentist at a cost of a few cents each. Procure at the plumbers some asbestos paper, such as is used for covering hot-air pipes; get some of each, the thinnest and thickest grades, use the thin for making holders and thick for bench pads, the latter to protect the bench from hot flasks, soldering, etc. Cut the paper into sizes and shapes desired; now lay these pieces on some heavy flannel; cut out the pieces of flannel one inch larger on all sides than the asbestos; turn the edges up over the paper and stitch fast. In using these always have the asbestos side of the holder or pad next to the hot surface.—*Items.*

Zelenka (R. L.) on the Treatment of a Case of Irregularity.

—This is the case of a young man about twenty-three years of age, of a sanguinous temperament, the color of the teeth cream-yellow, inclined to translucency, constricted at the cervix of a high degree of development and good constitution. The upper arch complete; the lower centrals and left lateral having been lost by an accident; the posterior bicuspid and six year molars (each side) also absent.

The irregularity consisted of the right upper lateral incisor being about an eighth of an inch posterior to its proper position, occluding inside of the lower cuspid and lateral and somewhat worn from mechanical abrasion—the upper right canine occupying about one-half the space belonging to the lateral and protruding somewhat anteriorly.

The first step was the taking of an impression—upper and lower and a model of articulation made and carefully studied. The arch being very full, we decided to extract the right upper second bicuspid to gain space; the corresponding tooth, (left second bicuspid) on opposite side being carious accompanied by exostosis and a troublesome abscess, this tooth was also removed. The next step was the construction of an appliance. An impression of the upper teeth was taken, a model made and an appa-

ratus capping two teeth, (sixth and twelfth year molars, right side), vulcanized with little knobs on each side; two holes were then punched in a piece of ordinary separating rubber, about an inch long, and thus was appended to the apparatus. The appliance placed on the teeth and the band drawn over the bicuspid. When the bicuspid had been sufficiently drawn back, another similar band was placed on the apparatus and the cuspid taken in. After sufficient time had elapsed and the cuspid was moved back, and sufficient space had been gained to draw out the lateral, another apparatus was vulcanized somewhat similar to the former, with a steel-wire spring extending from the apparatus to the lateral, on the bucco-labial surface. The spring ligated down to the lateral with silk ligatures and the lateral drawn out. A roof-plate was then put in to retain the teeth in their new positions. The operation being completed in about three months time.—*Extract Sou. D. Jour.*

Jarvie (Wm.) on a Case of Absorption of a Root to a Live Tooth.—I am treating a case at present which may be interesting and may help others to diagnose similar conditions. A lady came to me three or four weeks ago with soreness in the right superior lateral and a small fistulous opening near the margin of the gum. The opening was a very fine one; the appearance of the tooth did not indicate a dead pulp, and the symptoms made me think the pulp was not dead; and yet I could not understand why there should be a fistula. The direction of the sinus indicated that it was connected in some way with the lateral. I examined the tooth and could not find decay. With a fine instrument I worked up under the gum as far as I could. On the labial surface the gum clung quite close to the root, but I found when I worked an exploring instrument on the lingual side of the root the point of my explorer dropped into a cavity. I pressed the gum with cotton, and when I had the cavity sufficiently exposed, I discovered that it was not caused by decay, but by absorption, the cavity reaching to the pulp. I filled the cavity with gutta-percha, hoping that the pulp would give no further trouble, but it did, and I determined to destroy the pulp. To that end I drilled a cavity through the palatine surface of the tooth until I got to the pulp, and then I applied creosote and arsenic. About ten days ago a spot appeared on the labial surface of the gum, about a quarter of an inch in diameter, looking somewhat like the common ulcerated surface that we see sometimes, and yet not exactly like it. The tooth was very sore, and in the centre of that little spot was a fistula. I discovered the other day that I could work through that and into another cavity on the labial surface of the root, also caused by absorption and also reaching to the pulp. The cavity was perfectly round, as though a small worm had burrowed in, but was much larger on the inside than at the opening. I have not

explored it thoroughly, but a burnisher that I can just enter at the opening I can move in every direction upon the inside of the cavity. The cavity must be four or five times larger than at the opening. The tooth is perfectly sound so far as decay is concerned, and the pulp is alive. What has caused the absorption on corresponding points, one on the labial surface and one on the palatine surface of the root? I have never met with such a case before.—*Extract Inter. Dental Jour.*

Removal of Deposits from the Teeth.—To remove deposits effectively and without injury to teeth or soft tissues adjacent, is a duty and should be the aim of every dentist when operating. To accomplish the object successfully, with favorable results following, none but smooth bevel-edge scalers can or should be used. Experience confirms the conviction: therefore I can thus proclaim without fear of contradiction:

To dislodge and remove deposits by pressure with bevel-edge scalers, and not by cutting and scraping, has been my theory and practice for many years. With smooth scalers it is easy to determine when every particle of deposit is removed from tooth structure. With eyes closed and ears stopped, educated fingers can easily determine when the execution of the work of removal is complete. Not so in the use of sharp edge scalers.

With smooth bevel-edge instruments we avoid extreme discomfort to patients during operations for removal of deposits, never cutting or penetrating soft tissues, and we can always avoid cutting or scratching dentine or cementum, which would often do so prove detrimental to health of gums. A sharp scratch of tooth substance under the gum frequently becomes a local irritant, and requires treatment for relief, when the true cause of the trouble is not comprehended.

It is all important to guard cautiously against injury to tooth-substance below the margin of gum during the removing of calcareous or other deposits, that after troubles may not present and prove annoying.

There is no safeguard against injury to teeth or gums in the use of sharp scalers, they cannot be so manipulated as to prevent injury to some extent. Sometimes deposits at and below the necks of teeth causing irritation, inflammation and pus discharge, will dissolve and pass away, and the gum resume a healthy state: but it is not so if a tooth be cut or scratched with the edge of a sharp scaler, the trouble produced will continue until the cause is discovered and removed by artificial means. No one, in my judgment, can successfully remove deposits from teeth with sharp-edge scalers in a well defined case of pyorrhoea alveolaris and have any promise of effecting a cure: but with the use of bevel-edge scalers the result will be favorable, and with appropriate after-treatment, a cure can be easily effected, and may safely be promised in a *large majority* of

cases, in from one to two weeks, and in extreme typical cases, short of a month.

Pyorrhœa alveolaris is not so difficult of cure as some proclaim. It is curable, and can be cured easily, if bevel-edge scalers, instead of sharp be used for removal of deposits. Much of success depends upon the style of scalers used and how used. If they instruct you at college to use sharp edge scalers, do so as long as you are at college, but when you commence practice think and act for yourself, and give *smooth bevel-edge scalers* a fair test, and you will soon realize a difference in results.—*Sou. Dental Jour.*

Quinby (H. C.) on Extraction of Molars as a Means of Preventing Decay.—We all know how much may be accomplished in the treatment of irregularities, by extracting to make space for misplaced teeth to assume of themselves their proper position in the arch, and it is this tendency that I would have taken advantage of to the utmost, to prevent decay by practical isolation during the period of rapid growth and development, bodily and mentally, the lengthening and strengthening of the osseous system, and the feeding of the brain, which absorbs so much of the material that under less artificial conditions would go to strengthen the teeth and enable them to resist the action of destructive agents. As has often been said, it is our simple duty, as dentists, to endeavor to preserve the greatest possible number of teeth in the best possible condition of health, and, I may add, with the least possible amount of disfigurement.

How frequently the bicuspid will break down hopelessly before the patient has reached an age of wisdom and thoughtfulness enough to care for either usefulness or appearance we know, and how strikingly apparent the loss of these teeth will be when the gaps do not fill up properly we also know. We of course do meet with cases where the bicuspid gives us no anxiety, and we gladly recognise these comparatively rare cases as not requiring any professional interference; but regarded from the point of the ornamental character of the denture, no one will, I think, deny that the loss of these teeth is more striking than the loss of the six-year molars. Now, when we think what the average condition of the six-year molars really is—in how very few mouths they are not badly decayed before a child is ten years old; how they continue to decay in spite of our best efforts in the way of fillings; how their continued presence in the mouth during those trying years to which I have alluded is apt to render abortive our best efforts to preserve the bicuspid, as well as themselves, from decay which will seriously affect their usefulness and destroy their beauty; how the extraction of these teeth at the right time, will certainly go far to prevent the inception of decay in the bicuspid

and the anterior teeth, and how, if decay has already commenced, it will be more controllable, because the separations that will naturally follow will make all these teeth practically self-cleansing—it is difficult, for me at least, to see why the slight mal-occlusion from tilting of the twelve-year molars should be reason sufficient to deter us from doing what will be so manifestly to the advantage of the remaining teeth. I do not pretend to assert that this operation will always prevent decay, for decay will in many cases have already commenced before the proper time for extraction has arrived, and if this operation is to be performed at all, it should certainly be done when it will be most beneficial to all the other teeth; but I do assert that it will help us very effectually in the preservation of the anterior teeth, and I fully believe that in many cases, where family history indicates delicate teeth, it is perfectly justifiable, and I do not hesitate to advise it when the proper stage of dental development is attained, even though the molars be but slightly affected by caries. Our first duty is to prevent, the next in importance is to restore when prevention has been impossible. Isolation is prevention, so far as approximal decay is concerned, therefore, let us have isolation if possible.

I have been treating mouths in this manner for twenty-five years, and watching results with perfect satisfaction to myself and my patients, and I think I have a right to say that the operation is past the experimental stage, and when I deem it necessary, I treat youthful mouths in this manner with an absolute certainty of a satisfactory result.—*Extract Jour. Brit. Asso.*

Arrington (B. F.) on Nitrate of Silver and its Application.

In applying *nitrate of silver* to cavities to arrest decay, or to prepare for painless excavating and removal of decay, I twirl cotton on a round-head bur drill (size to suit cavity), moisten the cotton with saturate solution of the remedy, then touch the powder (scraped or crushed) of same, convey to cavity, rotate and keep in cavity for a few moments, then dry cavity with a pellet of bibulous paper, and fill cavity with beeswax to preclude moisture, until following day, or for several days, if necessary. Around the necks of teeth, near the gums, I apply the remedy in the same way, but greater length of time, as I do not, in such cases, use beeswax.

On the cutting edges, or grinding surface of the teeth, much worn away and sensitive, as is frequently seen, I apply the remedy in the stick form, direct to the sensitive surface, for a few (three to five) seconds, which is ordinarily sufficient to abate all sensitiveness.

For removal of discoloration produced by application of *nitrate of silver*, a saturate solution of iodide potassium, stick and pulverized pumice or silex is all that is requisite.

To guard against the possibility of injury to mucous membrane by scraping particles of *nitrate of silver*, it is well to have at hand a strong solution of table salt. Quickly applied it will prevent injury to the membrane.

In conclusion, I can say truthfully, I have never known injury to teeth by application of *nitrate silver*, but results always satisfactory, as with sulphuric acid in treatment of pyorrhœa alveolaris.—*Extract Sou. D. Jour.*

Discussion on What are the Best Forms for Partial Lower Dentures, and Methods of Constructing them.—The President, Dr. Jack, stated that as he understood it the question was capable of two divisions—what may be called three-fourths cases and the other full lower dentures. The three-fourths case is confessedly the one most used in dental prosthesis.

Dr. Genese submitted some specimens pertaining to the subject for discussion, and said, "These are all made for practical work; some temporary cases, others duplicates. They embrace most of the forms that will be met with in general practice, from one or two to a complete set. A great deal depends on the margins, the smooth finish of the work, and, above all, absolute freedom from pressure of the muscles of the lower jaw."

The doctor exhibited a case from his own mouth, which he stated he had worn for twenty-three years, and which had been mounted twice, and showed how it had been repaired without a band or fastener of any kind.

"In making partial dentures I dislike to have metal come in contact with the gum. I would trust more to a small wing of rubber to go around the gum to keep them down until the muscles become accustomed to the strange feeling. I take advantage of the leaning forward of the last molars, and get it well under and then drop it down like a bent hook. In complete dentures I use the spiral springs. They are very useful, though I find they are very little known in this country. They are wound with eighteen-carat spring-wire, with a swivel and a small hook and screw between the lower ones to prevent going into the muscles of the jaw, and retain the denture in the mouth exceedingly well for a number of years before breaking."

Dr. Deane.—I have had more or less success and a good many failures, but have had more success with gold than with rubber, taking a plaster impression and making the cases very small. As a friend of mine, Mr. Frank Faber, once said, "File your lower case until you think you have spoiled it, and file it again until you think it will fit." I have followed that idea out with about as much success as it is possible to get. Simply fit the ridge of the jaw, and if there is no ridge, still

hold to that law, and the articulation being as perfect as it is possible to get it, you will meet with more success than to trust to wide and bulky pieces of rubber or metal.

I think if the pieces passed around are not allowed to lap over the jaws, the fit will be more accurate and they will create less friction on the tooth at the band. I make the band of as near pure gold as I can get, very thin and small. Sometimes I find it necessary to cut it in two or three pieces, and then swedge and solder.

Dr. Nichol.—I have prepared these cases, using gold for partial lower dentures where the incisors are in position, and sometimes the first bicuspid, the object being to prevent the plate from pressing to the back part of the mouth. They are used when there is no molar to prevent the plate being driven posteriorly. The plate is swedged in the usual way, the band extending around the ridge just below the incisor tooth, and the whole put in the mouth and filed nicely to fit. An impression is then taken, and the whole invested and soldered in that way. The purpose is to get a band of gold broad enough to prevent cutting into the ridge running around the front of the tooth or the ridge just below the teeth. One of the advantages is to prevent the necessity of using clasps. It is rarely that a bicuspid can be clasped with satisfaction, as it is not adapted for it, and I think this method secures better results than clasping. It avoids the band that Dr. Genese speaks of, and makes a very firm and substantial plate.—*Odont. Soc., Pa., International.*

Genese (D.) on the Adaptation of the Genese Crown.—What I endeavored to obtain by the method shown to-day is conservation of the root with its marginal covering, also to avoid the necessity of reaming or drilling the pulp-canal to a given size to fit a pivot already formed irrespective of the conditions that might be found, and to adjust a bifurcated pivot so exactly that no undue strain should be the result to cause irritation after the crown was in place, and to have the pivot so under control that should a curve be in the root it will adapt itself to it, avoiding that distressing cause of so much trouble in pivoting—pressing the sides of the root into the alveolar process, with its train of troubles.

To the gentlemen who were not at the clinic I would briefly state that these crowns are made to conform as nearly as possible to the natural roots found in a number of models, with sufficient porcelain left on them to allow for grinding in any direction, their density permitting them to be repolished.

A cup of irido-platinum is burnt into them, which has a head pressed upon it to prevent pulling out. It can be subjected to heat sufficient to melt pure gold without fear of cracking as the tubular form allows it to shrink indefinitely, making at each firing a tighter hold on the platinum lining, as shown in specimens passed around.

The pivot is of the same platinum, formed from the sheet, and left hollow to allow for fitting into the canal its entire length. This can be kept hollow by plugging with asbestos, or made solid by drawing the solder into it by the flux.

By this system you will see that the pivot and crown are independently fitted to the root, and when soldered will occupy exactly their relative positions to each other, requiring very little cement to hold them in place.

Apart from this, each step of the work is under close inspection with mirror and models and by the point of instruments to detect any overlap, and the extra length of porcelain allows for grinding, fitting, and placing the crown at any angle independently of the pivot.

The soldering process is rendered safe and simple by the use of the little holder of pin metal and Teague's investing compound, as shown in specimens, which holds the post and tooth in position. The flame should be directed well on to the body of the tooth in soldering, rendering it the hottest part when solder flows, and the specimen in sections will demonstrate the union of tooth and pivot.

The higher the standard of solder used the better the result, as platinum cannot be properly soldered with poor metal.

Pure silver or gold or 18-carat plate gives the best result.

For accuracy of adjusting, models are taken after the root is prepared: the crown is fitted and articulated and tried in its place, the hollow is filled with Parr's wax flux, which prevents grit from the wheels or any substance being in the platinum cup that might interfere with soldering. The pivot in its place, and the crown already proved correct, warm the wax and adjust to position, then cool. When withdrawn, invest as shown by model and solder. Ten minutes after, the crown is ready to place in position.

The usual precaution of sealing the apex and drying the canal is needed. Gutta-percha is good in some cases, but I prefer fossiline, imported from Europe. It wears well, is a safe and easily-worked oxy-phosphate, not setting too quickly, very adhesive and durable, while its chief advantage is intense hardness soon after fixing, and retaining its density, though mixed thinner than most of its similar compounds.

In finally adjusting the crown, I place a wooden point on the automatic hammer and tap it a few times, forcing the crown to its closest adaptation and driving off the excess of cement.

It sets hard enough in ten minutes to allow grinding the crown, should the articulation require it.

If hurried from any cause, these crowns can be set by this cement without soldering, and will last several months. To those who prefer

banding, this crown presents the strongest air-tight collar; no possibility of fluid entering between the metal and tooth, and the least amount of gold showing, as the edges are made flush with porcelain, as shown in specimen.—*Extract Inter. Dental Jour.*

SECRETARY'S REPORT.

To His Excellency Hon. WM. McKINLEY, Governor of Ohio:

The Board of Dental Examiners of the State of Ohio, has the honor of submitting to you its first annual report.

During the year the board has held five meetings, registering nine hundred and sixty-two applicants, seventeen of whom have undergone examination.

While the law provides for two regular meetings, the first on the last Tuesday in May, and the second on the last Tuesday in November, the board has been compelled to hold three extra meetings for the consideration of unforeseen emergencies of the most vital importance. This being the first year of the board under the new law, the receipts have been more and the expenses have been greater than will occur in the future, and it is estimated that it will not hereafter be necessary to hold more than the two regular meetings as the important work of the board has been completed.

The board has acted cautiously in every detail, especially in examinations.

There have been several prosecutions in the minor courts, but were settled by an admission of guilt, and application made formally for certificates by examination. The board has refused to register quite a large number of applicants who were totally unqualified to practice, some of whom have been forced recently into Ohio by dental legislation in adjoining States. These applicants were not *bona fide* residents. The "Dental Act" has met with general favor and is thought will have a salutary effect upon the community, promoting a higher degree of skill among those contemplating the practice of dentistry in this State. There has been perfect harmony in the board and all questions have been settled by a unanimous consent.

Following is a statement of finances:

Total receipts, -	-	-	\$2,096 25
Total expenditures, -	-	-	1,283 05
Balance on hand, -			\$813 20

Respectfully submitted,

JAS. SILCOTT, *Pres.*

G. MOLYNEAUX, *Sec'y.*

Dated at Columbus, the 29th day of May, 1893.

OHIO DENTAL LAW.

AN ACT

To amend sections 4404 and 6991 of the Revised Statutes of Ohio.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That sections 4404 and 6991 of the Revised Statutes of Ohio be so amended as to read as follows:

Dentists:

SEC. 4404. From and after July 4, 1892, it shall be unlawful for any person to practice dentistry in this State, unless such person shall have first obtained a certificate of qualification issued by the State Board of Dental Examiners of this State, as hereinafter provided.

Requirements for practice of dentistry.

1. A board of dental examiners, to consist of five practicing dentists, resident in this State, is hereby created, whose duty it shall be to carry out the purposes and to enforce the provisions of this act. The members of the first board of dental examiners under the provisions of this act shall be appointed by the governor of the State on or before the first day of May, 1892. The term for which members of said board shall be appointed shall be three years, and until their successors shall be duly appointed and qualified, and no person shall be appointed for or serve to exceed two terms in succession. All vacancies in said board caused by expiration of term, or otherwise, shall be filled by the appointment of the governor of the State.

Board of dental examiners.

Appointment of members.

Term of office.

Vacancies.

2. Said board shall have power to make reasonable rules and regulations for the purpose of carrying out and enforcing the provisions of this act. It shall choose one of its members president, and one secretary; and shall hold two regular meetings in the city of Columbus, on the last Tuesday of May and November, in each year, and at such other times as may be deemed necessary by said board. A majority of said board shall at all times constitute a quorum thereof for the transaction of business, but a less number may adjourn from time to time. The board shall keep full minutes of all of its proceedings, and a full register of all persons licensed and certified as dentists by said board, which shall be public records, and at all reasonable times open

Rules and regulations.

President and secretary; meetings.

Quorum; less number.

Minutes of proceedings; register of licensed and certified dentists.

Certified
copies.

Power to
administer
oaths and hear
testimony.

Application for
examination
and license.

Fee.

Appearance
of applicant
before board.
Examination.

Who shall be
registered and
licensed as
dentists.

Certificate.

Fee not to be
refunded.

Certificate to be
conspicuously
displayed at
place of
business.

to inspection as such. A transcript of any of the entries in such minutes and register, certified by the secretary under the seal of said board, shall at all times and places be competent evidence of the facts therein stated. The members of the board shall have power to administer oaths, and the board shall have power to hear testimony in all matters relating to the duties imposed upon it by law.

3. Any and all persons who shall desire to practice dentistry in this State, after July 4, 1892, except such persons as have been regularly, since July 4, 1889, engaged in the practice of dentistry in this State, or who may hold, or may hereafter obtain diplomas from any reputable dental college, shall file application in writing with the secretary of said board of dental examiners for examination and license, and at the time of making such application shall pay to the secretary of said board a fee of ten dollars; and each applicant shall present himself before said board at its first regular meeting after filing his application for examination by said board. The examination shall be of an elementary and practical character, but sufficiently thorough to test the fitness of the applicant to practice dentistry. The examination may be written, or oral, or both at the option of the board, and shall include the following subjects, to-wit: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, and operative, mechanical and surgical dentistry. All persons successfully passing such examinations, or who may legally hold diplomas from any reputable college of the United States, or any foreign country, or who may have been regularly, since July 4, 1889, engaged in the practice of dentistry in this State, of good moral character, shall be registered and licensed by said board as dentists, and shall receive a certificate of such registration and license, duly authenticated by the seal and signature of the president and secretary of said board; and in no case shall the examination fee be refunded.

4. Every person receiving such a certificate of registration and license as dentist shall, before engaging in the practice of dentistry in this State, place and retain in place while engaged in the practice of dentistry in this State, such certificate of registration and license in a conspicuous position at

his place of business, in such manner as to be easily seen and read.

5. Every person who may legally hold a diploma from any reputable dental college in the United States, or any foreign country, or who has been regularly, since July 4, 1889, engaged in the practice of dentistry in this State, shall, upon application and payment of a fee of two dollars to the secretary of said board of dental examiners, and producing satisfactory and reasonable proof of the fact that he holds such diploma, or has been so engaged in the practice of dentistry in this State, since July 4, 1889, receive a certificate of registration and license to practice dentistry in this State. Every applicant for license to practice dentistry under the provisions of this section shall, in person, by mail or otherwise, produce for the inspection of the board of dental examiners his diploma, or the affidavits of himself and two freeholders stating that he has been regularly engaged in the practice of dentistry in this State, and at what place or places, since July 4, 1889; and if the board of dental examiners shall, upon inspection thereof, find that the applicant is legally qualified under the provisions of this act to practice dentistry in this State, the secretary shall, without unnecessary delay, deliver to the applicant a certificate of registration and license to practice dentistry in this State, or forward the same without expense to the board in such manner as the applicant may direct. The certificate of the secretary of said board of dental examiners, under the seal of said board, stating that any person is or is not a registered and licensed dentist, shall be *prima facie* evidence that such person is or is not entitled to practice dentistry in this State.

SEC. 6991. All persons shall be said to be practicing dentistry within the meaning of this act, who shall for a fee, salary or other reward paid, or to be paid, either to himself or to another person, perform dental operations of any kind, treat diseases or lesions of human teeth or jaws, or attempt to correct malpositions thereof. But nothing contained in this act shall be taken to apply to acts of *bona fide* students of dentistry done in pursuit of clinical advantages under the direct supervision of a preceptor who is a licensed dentist in this State, or while in attendance upon a regular course of study in a

Who shall receive certificate without examination.

Fee.

Proofs required of such applicants.

Delivery of certificate.

Evidence of authority to practice dentistry.

Practice of dentistry defined.

Students of dentistry, physicians and surgeons.

reputable dental college, or to the acts of legally qualified physicians and surgeons.

Compensation
and mileage of
members of
board of dental
examiners.

1. Out of the funds coming into the possession of the board as above specified, the members of said board may each receive a compensation in the sum of five dollars for each day actually engaged in the duties of their office as such examiners; and a mileage of three cents per mile for all distances necessarily traveled in going to and coming from the meetings of the board. Said expenses shall be paid from the fees and assessments received by the board under the provisions of this act, and no part of the salary or other expenses of the board shall ever be paid out of the State treasury.

Payment of
such expenses

Special fund for
other expenses.

All moneys received in excess of the said per diem allowance and mileage as above provided for, shall be held by the secretary of said board as a special fund for other expenses of said board and carrying out provisions of this act, he giving such bond as the board shall from time to time direct.

Bond of
secretary.

Penalty for
violations.

2. Any person who shall violate any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction thereof may be fined not less than twenty-five dollars nor more than one hundred dollars, or be confined not less than ten days nor more than one month in the county jail, or both. All fines thus received shall be paid into the common school fund of the county in which such conviction takes place. It is hereby made the duty of the prosecuting attorney of each county in the State to prosecute every case to final judgment whenever his attention shall be called to a violation of the provisions of this act.

Disposal of
fines.

Duty of
prosecuting
attorney,

Penalty for
deceiving
public.

3. Any person who shall knowingly or falsely claim or pretend to have or hold a certificate of registration, or who shall falsely and with intent to deceive the public, claim or pretend to be a registered and licensed dentist, not being such a registered or licensed dentist, shall be deemed guilty of a misdemeanor and shall be liable to the penalties provided in this act.

Suit by or
against board.

4. The board of examiners created by this amended act may sue or be sued, and in all actions brought by or against it, it shall be made a party under the name of the Board of Dental Examiners of the State of Ohio, and no suit shall abate by reason of any change in the membership of said board.

SECTION 2. Said original sections 4404 and 6991, ^{Repeals.} to which this is amendatory, are hereby repealed.

SECTION 3. This act shall take effect and be in force from and after its passage.

LEWIS C. LAYLIN,
Speaker of the House of Representatives.

ANDREW L. HARRIS,
President of the Senate.

Passed April 8, 1892.

ATTORNEY-GENERAL'S INTERPRETATION OF THE NEW DENTAL LAW.

Dr. GRANT MOLYNEAUX, *Secretary Board of Dental Examiners,
Cincinnati, Ohio:*

1. The words "regularly, since July 4, 1889, engaged in the practice of dentistry in this State," mean steadily or continuously engaged in such practice; and the practice of dentistry does not include, I take it, a term of pupilage. There is a distinction between the study and the practice of dentistry, just as there is between the study and the practice of law, or the study and the practice of medicine. A person cannot be said to be engaged in the practice of dentistry who is simply a pupil, and is not qualified to do and does not do the work of a dentist on his own responsibility. The act itself (Sec. 6991) gives a good definition of what constitutes the practice of dentistry. A person who had been engaged in the practice of dentistry, as above indicated, since the 4th of July, 1889, whether of age when he began the practice or not, came within the class of those entitled to a certificate on making the necessary proof and paying the prescribed fee.

2. A graduate of medicine must obtain the certificate of your board before engaging in the practice of dentistry. The exemption set out in Section 6991, applies to dental operations performed by legally qualified physicians and surgeons in connection with the practice of their profession of medicine and surgery. The act recognizes a distinction between such operations incidental to the practice of medicine and surgery, and the regular practice of dentistry requiring a certificate from your board.

3. A physician who, in the practice of his profession, per-

formed occasional dental operations, cannot be said to have been regularly engaged in the practice of dentistry, and hence is not entitled to a certificate to practice dentistry under the time exemption of the act.

4. The provision of Section 6991—"but nothing in this act shall be taken to apply to acts of *bona fide* students of dentistry done in pursuits of clinical advantage under the direct supervision of a preceptor who is a licensed dentist in this State"—does not authorize such students to be sent out by their preceptor to perform dental operations beyond his direct and personal supervision. The purpose of the law is to protect the public against the work of those unskilled in dentistry, by requiring proof of skill before power to practice dentistry is acquired. It permits, however, the performance of dental operations by students so they may acquire the skill which in time, on the certificate of your board, will admit them to practice provided the skill requisite for the protection of the patient is present in the person of the licensed dentist overseeing the work.

HOW TO BRING SUIT.

BY WILLIAM LITTLEFIELD, CINCINNATI, O.

DR. GRANT MOLYNEAUX, *Secretary of the Board of Dental Examiners, of the State of Ohio.*

DEAR SIR,—In reply to your inquiry concerning the jurisdiction of the various State Courts over offenses committed under Section No. 4404 and Section No. 6991, Revised Statutes of Ohio, which sections create the Board of Dental Examiners of the State of Ohio, and define the powers and duties of said board, I beg leave to submit the following:

A prosecution for a violation of the dental laws, may be brought in a common pleas court, a police court, or a magistrate's court.

If brought in a common pleas court, proceedings must be first instituted before a magistrate, who will bind the defendant over to the grand jury, and if the grand jury finds a true bill of indictment, the defendant will then be prosecuted in the common pleas court, by the prosecuting attorney of the county. Another way of bringing the case into the common pleas court is to get

the prosecuting attorney, or the foreman of the grand jury, to present the case directly to the grand jury. In this connection, I may say that prosecuting attorneys are generally reluctant to undertake the prosecution of a misdemeanor, their chief duty being to prosecute felonies; and I would advise the board, that before prosecution under the dental laws are taken before a grand jury, that the prosecuting attorney of the county in which the action is brought, should be first consulted, in order to ascertain whether or not he will push the matter if it comes before him. If he can be made to see the importance of punishing violations of the dental laws, a prosecution through him in the common pleas court will certainly be the most effective plan of punishing offenders. The defendant is compelled to give a bond, and to wait for some time before his case is called, and a more severe punishment is apt to be inflicted in a common pleas than in a court of inferior jurisdiction.

If the prosecution is brought in a police court, as can be done in cities which have police courts, or in towns where the mayor is vested with police court jurisdiction, the defendant can be convicted and fined, without the case going up to the grand jury. In such court, however, he has the right to demand a jury. In counties where the prosecuting attorney is disinclined to interest himself in the prosecution of misdemeanors, I should advise that the prosecution be brought before the police court, if there be one, or before the mayor, where there is no police court.

If the prosecution be brought in a magistrate's court, the third mode of proceeding, to which I have referred, two courses are open to the defendant.

First, under Section No. 7147, Revised Statutes, the defendant may waive his right of trial by jury in writing, and consent to let the magistrate have final jurisdiction of his case. In this case the squire tries the defendant, and if found guilty, fixes the fine.

Secondly, if the defendant does not by waiver in writing give up his right to a jury trial, the magistrate only has power to hear the testimony, and bind him over to the grand jury.

A magistrate has no power to try a defendant, unless he waives his right of trial by jury, as I have said. Otherwise he must bind the defendant over to the grand jury. By special enactment, however, magistrates have been given the power to

summon a jury of twelve in order to try cases in violation of the laws to prevent adulteration of food, dairy products, drugs, medicines, for cruelty to animals, for employing children under fourteen, for treating children cruelly, etc., but none of these special enactments gives any power to a magistrate to summon a jury for the purpose of trying a defendant who is charged with a violation of the dental laws.

I believe I have now fully advised you in reference to the jurisdiction of the different courts, and have also indicated in what manner I think it would be best to bring a prosecution for a violation of the dental laws.

THIRD REGULAR MEETING OF THE BOARD OF DENTAL EXAMINERS.

HELD AT COLUMBUS, OHIO, MAY 30, 1893.

THE third regular meeting of the Board of Dental Examiners, of the State of Ohio, was held at Columbus, O., May 30, 1893.

The meeting was called to order at 8 P. M., by President Silcott. A little unimportant business was disposed of, when the Board adjourned to meet Wednesday A. M., May 31, at 9 o'clock.

Wednesday, 9 A. M.—President Silcott called the meeting to order. All members present. A communication from a gentleman who claimed he had not enough money to bear the expenses of an examination, at present, asking permission to practice under the license of another man, who employed him to “assist in his office, and to solicit work in adjoining counties,” was read. The Secretary was instructed to inform the gentleman that the Board had no authority to issue “permits” of any kind, and that if he practiced dentistry as he proposed, he rendered himself liable under the law.

Proof having been submitted that certain certificates had been lost, or destroyed by fire, the Secretary was ordered to issue “duplicates” to the gentlemen making the claims.

On motion, the Secretary was ordered to hold several applications for registration, pending investigations, to be conducted by the Secretary.

Motion, instructing the Secretary to send all certificates by express at expense of recipient,—carried. (NOTE.—Persons en-

closing the amount to *pre-pay* charges, can have their certificate sent to any point in the state, by express, for 10c.)

Dr. B. F. Clayton presented himself, in person, before the Board, and after satisfying the Board of his right to practice in this state, was granted a certificate.

The following candidates for examination, then presented themselves, and after satisfying the Board of their fitness, were granted certificates. J. C. Wherry, H. R. Hammond, Miss N. H. Trissler, H. B. Mitchell, J. H. Bean, C. N. Bradford. Their averages ranging from 70% to 89%.

Board adjourned till 8 o'clock, P. M.

S. P. M. Meeting called to order by the President. Secretary's report was read and approved. Accounts were audited and found correct.

On motion of Dr. Smith, the Board then proceeded to elect officers for the ensuing year. Ballot for the presidency, resulted in the unanimous choice of Dr. L. E. Custer, of Dayton, O.

On motion by Dr. Molyneaux, Dr. Grant Mitchell, of Canton, was chosen Secretary, by acclamation.

Dr. Smith then moved that Dr. Silcott, of Washington C. H., be appointed a delegate to the National Association of Dental Examiners, at Chicago, August, 1893. Carried.

Meeting adjourned till last Tuesday in November, 1893.

GRANT MITCHELL, *Sec'y.*

EDITOR'S NOTES.

DENTAL LEGISLATION IN OHIO.

IN this issue we have devoted considerable space to dental legislation in Ohio. While it may be of little interest to our readers throughout the world, it is of great interest to the dentists of Ohio, and we trust our subscribers will see it in this light and be patient with us.

While our present law is not all that could be desired, it is a very good one and the Board of Dental Examiners are determined to see it carried out to the letter. We have been informed by the present secretary, Dr. Grant Mitchell, that the Board will do all in its power to have prosecutions made wherever there is

illegal practicing and guilty dentists speedily brought to justice. We hope the law will be rigidly enforced for the sake not only of the legal practitioners, but of the public as well.

EXAMINING BOARD NEWS.

IN a column under the above heading, Dr. Grant Mitchell, Secretary of the Board of Dental Examiners, will hereafter give a brief report of the work done by the Board during the month, and will answer all questions of *general interest* connected therewith, or in connection with the law regulating the practice of dentistry in this State.

WANT FACTS.

THE Arophene Manufacturing Company take exceptions to the article on "Local Anesthetic Nostrums," that appeared in our June number, saying "it was intended to do them harm; was an injustice," etc. The article in question was printed in the *Cosmos*, to show that cocain was incorporated in most of the local anesthetics now on the market, and represented Arophene as containing 1.46 %, while the company claim less than 1 %, but do not deny the presence of cocain. They say: "It matters not to us what is published concerning our preparation so long as people relate *facts*, but such was not the case with this article, which we wish you would mention in your next issue."

Now, *facts* are what we want; we do not wish to misrepresent anyone, and we have never published an article with that intention. The article in question was to establish the fact that Arophene, as well as other local anesthetics, contained cocain, and it did so. As to the other ingredients mentioned we are willing to correct any misrepresentation when we have *facts* to do it; send us your formula, gentlemen, and we will see that *facts* are stated and that the majority of dentists throughout the world will be correctly informed as to the contents of your anesthetic.

ASSOCIATION OF DENTAL EDITORS.

THE *Dental Tribune*, of June 10th, 1893, says: "We trust that the meeting of the World's Columbian Dental Congress will

offer an opportunity to editors of dental journals for forming an association of editors that may prove advantageous to the journals and their readers," etc.

THE OHIO DENTAL JOURNAL first suggested such an association, in March issue, 1892, and asked for editorial comment on the idea; two journals favored it and the remainder were silent on the subject. We believe that a permanent organization of dental editors, to meet each year at the time and place of the American Dental Association, would be productive of much good to both journals and readers.

NEW PUBLICATIONS.

BOOKS RECEIVED.

FORMULAIRE PRACTIQUE POUR LES MALADIES DE LA BOUCHE ET DES DENTS. BY G. Viau, Paris, France.

ORTHODONTIA, OR MALPOSITION OF THE HUMAN TEETH; ITS PREVENTION AND REMEDY. By S. H. Guilford, A.M., D.D.S. Second edition, revised and enlarged.

BRIEFS.

— PATIENTS having albuminous urine are easily intoxicated by the hypodermic injection of cocaine.

— USE equal parts of plaster of Paris and hard coal ashes as an investment for gold work.—*A. E. Matteson.*

— KEEPING the eyes open does away with the feeling of tension which is produced by gas, and it also seems to make the period of anesthesia arrive sooner.—*Dr Halliday.*

— INSTRUMENT points with just sufficient convexity to avoid flatness, and with distinctly rounded edges, will produce better results than any others in welding gold.—*S. H. Guilford.*

— To remove oil and grease from whetstones—the process consists in stirring up whitening with water and applying it with a brush to the whetstone, which has been warmed in an oven.—*Micro. Jour.*

— THE first step in the correction of an irregularity is to secure

a perfectly articulated model and then carefully study same; plans may then be laid out for the accomplishment of the desired object.—*R. L. Zelenka.*

— TEETH in the superior jaw are more subject to irregularity than those in the inferior—it is also most common and unsightly in anterior teeth. Irregularity favors caries and in certain instances impairs speech.—*R. L. Zelenka.*

— A new porcelain has been obtained by grinding asbestos to a fine powder, and dissolving out all soluble matter with hydrochloric acid. The powder thus obtained is made into a paste with water, and baked for eighteen hours at 1200 deg. in a suitable furnace.

— DR. Geo. B. Clement has simplified a method of making a metal crown, by using a platinum band with gold masticating surface. He claims for this method that the work of soldering is much simplified and facilitated, while the crown is less conspicuous than all gold.

— MR. BRUNTON showed an instrument for treating the canals in buccal roots and pre-molars for filling. It consisted of a small piece of piano wire inserted into a chuck to run in a right angle on an engine, acting as a reamer, and, in Mr. Brunton's opinion, simplifying the operation.—*Record.*

— EUCALYPTOL, the ethereal oil of eucalyptus, has a peculiar action on the suppurative process. It paralyzes, as has been ascertained, the white corpuscles as soon as they have penetrated the blood vessel wall during inflammation. The process of tissue disintegration is hence checked by this drug.

— THE best way (according to Fletcher) to use a small Bunsen, is to have it mounted with the tube horizontally, or nearly so. In such a position it never gets choked with dirt, and can be turned down safely to the smallest point of flame without the use of the air slide, and without risk of lighting back.

— AT the meeting of the Académie des Sciences, on the 21st of March, M. Robin described iozodone, a liquid compound produced by the combination of iodine and ozone. It is a clear, innocuous liquid, void of any irritating properties; a powerful disinfectant; forms a useful application to ulcers, and may be used as a mouth wash.—*Dublin Journal of Med. Science.*

— I might urge the dangers of too low a bench; not merely is a stooping habit engendered—so much increased by our operative procedures, with its concomitant of a contracted chest—but there is also the danger of developing myopia; a bench thirty-nine to forty inches is to be recommended, as, if the bench is high enough, the stool can correct individual height.—*D. Headridge.*

— THE best styptic, from its non-irritating properties, according to Prof. Cheever, of Harvard University, is ferric alum. It coagulates the blood very quickly, but forms with the clot a sort of sand, which is not very irritating to the tissues. Referring to its advantages over persulphate or perchloride of iron he remarks that ferric alum forms a smooth sort of tissue, while the two former agents form hard brittle angular masses.

— I have just seen an instance of the injury of allowing little pieces of amalgam to lodge between the teeth when filling proximal cavities. A piece thus left between the teeth had sunk into the alveolus, causing severe and constant soreness and slipping of the alveolus. The young man supposed it was an abscess or ulceration from poison, but it proved to be only the irritation of a piece of rough amalgam left there when filling a cavity.—*J. F. Steele.*

— The pitting and scaling of cohesive-foil fillings, which have at times filled the heart of the ambitious young operator with dismay, and have been the cause of much of the opprobrium that has been cast on the employment of cohesive gold, are attributable to too great cohesiveness of the gold on to deep serrations and finely pointed instruments, or the use of foil so thin and delicate as to be easily torn and comminuted.—*S. H. Guilford.*

— IT seems more than probable that the violent action of nitric acid upon many metals depends very largely upon the presence of slight impurities. For instance, copper, bismuth, mercury immersed in pure nitric acid are unaffected for a considerable time, but directly a trace of nitrous acid, one or two parts in 10,000 is present, the metal is rapidly dissolved. It is also stated by Tir Viviau Hussey, that one-thousandth part of antimony will convert the best copper into the very worst.

— THE gain of a sound practical knowledge in mechanical

dentistry is an unmistakable advantage—"the pupil by doing everything with his own hands develops a real affection for his work, and his resources are increased in all sorts of unforeseen ways," acquiring "a quick perception of the ways and means and readiness of invention;" and as a dentist, he that can do, has greater powers than he who can merely advise—"theory without practical knowledge is a dangerous thing."—*D. Headridge.*

—MR. HUMBY, speaking of Pyorrhœa Alveolaris, said that he thought that the cause was generally mistaken; he thought that the disease was caused by death of a portion of the cementum in the root, and the lacunæ became charged with septic material, and thus set up irritation of the gum and absorption of the alveolus, and thought that if some drug was used that would coagulate the albuminous contents of the lacunæ, the disease might be arrested; and he mentioned a case in practice in which he had successfully used nitrate of silver, 30 grains to the oz.—*Brit. Journal.*

—WHILST a man of average physique may work for many years in the practice of some professions, and do the highest and best work in his calling, without suffering from the effects thereof, I think I am right in saying that when a man is fully occupied in such work as the preservation of the natural teeth in the mouth entails, there are few who do not feel and show the effects of the strain upon their nervous system. And this condition of things, if not recognized and promptly remedied, will have a permanently injurious effect on the lives of such operators.—*W. B. Neale.*

SOCIETIES.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

CHICAGO, ILLINOIS, AUGUST 13-19, 1893.

To the Dentists of the United States of America, Canada, Mexico, Central America, and South America, greeting:

THE movement to hold a Dental Congress in Chicago, Illinois, August 14-19, 1893, inclusive, received its official status from the joint action of the Southern Dental Association at its meeting in July, 1890, held at Atlanta, Georgia, and the meeting of the

American Dental Association held at Excelsior Springs, Missouri, in August, 1890. The undersigned General Executive Committee was appointed by the two associations to adopt rules and regulations, fix the time for convening the congress, secure the place for holding the sessions, and make such other preliminary arrangements as it deemed necessary.

The work of appointing committees to promote the success of the congress is finished, the permanent officers have been chosen, the honorary officers have been appointed in all foreign countries, and the time and place of meeting fixed.

A general invitation has been issued, asking the co-operation of the reputable dentists of the civilized world to meet with the dentists of the United States of America at the time and place fixed, for the presentation of papers, both scientific and practical, covering the entire range of theory and technology. It is believed that the newest investigations, discoveries, and methods in physiology, histology, bacteriology, pathology, oral surgery, chemistry, materia medica, therapeutics, orthodontia, operative dentistry, prosthesis, and deontology will be presented to this congress in a manner not heretofore attempted in any international gathering of a similar character.

It is with pleasure, therefore, that we appeal to the dentists of America to assist in this great undertaking, which promises so much for the future of dentistry and dental surgery, in placing its practical and humanitarian objects before the public at large. This congress will be an educator of such vast proportions to the practitioners of dentistry, that few can realize the direct benefits which will accrue, not only to those participating, but to those who deny themselves the opportunity to make history for the generations yet to follow.

The Transactions, when printed, will be a permanent record of scientific development that may well serve as a starting point in future professional advancement, education, legislation, and prophylaxis.

Nothing will be omitted to provide for the comfort and entertainment of those who lend their presence for the furtherance of the objects of this congress, and a programme of such literary merit will be presented as shall reflect in the clearest manner the past history and present development of dental science, including also the practical demonstration of every phase of operations

known. These demonstrations will be made by those best fitted by native ingenuity, education, and technical skill in bacteriology, histology, pathology, oral surgery, and other more practical subjects, such as orthodontia, prosthesis, electricity, and mechanical operations on the teeth, jaws. and associate parts.

The facilities for meetings and clinical demonstrations are ample to accommodate all who are entitled to admission to the congress. The Memorial Art Palace is situated near the center of transportation, it is isolated from traffic, and is well lighted and ventilated.

The general headquarters will be located at 300 Michigan Avenue, within ten minutes' walk of the assembly-rooms. All communications to the Secretary of the General Executive Committee to be sent to this address after July 15.

The profession in America must now assume the responsibility of making this congress a success, on the lines laid out by the General Executive Committee. This can only be accomplished by the immediate response of those who contemplate being present in person, or by contribution, financial or otherwise.

The committee urgently requests an immediate decision from those purposing to attend, in order to facilitate the work of the various departments, and reduce to a reasonable certainty the attendance from America.

Contributions of money should be made directly, and at once, to the chairman of each State Finance Committee, for transmission to the Treasurer, who shall issue his receipt for the same.

Adherents of the congress will address letters of inquiry to the Secretary of the General Executive Committee, in order to receive an official reply.

Cordially and fraternally yours,

W. W. WALKER, Chairman of the General Executive Committee. 67 W. 9th St., New York City, New York.

A. O. HUNT, Secretary of the General Executive Committee, Iowa City, Iowa.

L. D. SHEPARD, President of the Congress, 330 Dartmouth Street, Boston, Massachusetts.

A. W. HARLAN, Secretary-General of the Congress, 1000 Masonic Temple, Chicago, Illinois.

JOHN S. MARSHALL, Treasurer, Venetian Building, Chicago, Illinois.

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Members of the General Executive Committee.

MEMBERSHIP.—The duties of the Committee on Membership shall be to pass upon all applications for membership which may be referred to it by the Committee on Registration or the Treasurer.

The membership shall consist of legally qualified and reputable dentists (as defined in the Code of Ethics of the American and Southern Dental Associations) residing in the United States, and such other scientific persons as may be invited by the Committee on Invitation; each and every member to be entitled to one copy of the Transactions.

All dentists residing in foreign countries who desire to acquire membership in the congress will file their application with the honorary president or vice-presidents of their respective countries, who are empowered to pass upon their eligibility.

When applications are satisfactory to the honorary president or vice-presidents, or a majority of them, in said country, the names so agreed upon shall be transmitted by July 15, 1893, to the chairman of the Committee on Registration, who will proceed to issue a membership card without further reference.

OFFICERS OF THE SECTIONS.—"SCIENCE"—DEPARTMENT "A."

Section 1—Anatomy and Histology.—Chairman, R. R. Andrews, Cambridge, Mass.; Vice-Chairman, E. P. Beadles, Danville, Va.; Secretary, F. T. Breene, Iowa City, Iowa.

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Section 3—Chemistry and Metallurgy.—Chairman, D. R. Stubblefield, Nashville, Tennessee; Vice-Chairman, J. S. Cassidy, Covington, Ky.; Secretary, E. V. McLeod, New Bedford, Mass.

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Section 8—Education, Legislation, Literature.—Chairman, J. J. R. Patrick, Belleville, Ill.; Vice-Chairman, H. L. McKellops, San Francisco, Cal.; Secretary, W. H. Whitslar, Cleveland, Ohio.

AMERICAN DENTAL ASSOCIATION.

THE thirty-third Annual Session of the American Dental Association, will be held in Chicago, commencing Saturday, August 12th, 1893, at 10 o'clock, A. M.

GEO. H. CUSHING, *Rec. Sec'y.*

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE annual meeting will be held in the house of the Columbian Dental Club, Chicago, No. 300 Michigan Avenue, beginning on Thursday, August 10th, at ten o'clock A.M., and continue probably through that and the succeeding day. It is important that all matters of business to come before that meeting be properly prepared beforehand, so that business can go promptly forward. It is to be hoped that all persons interested will give special attention to this request, and that every member be promptly present at the beginning of the meeting, as only the two days will be available for the work. J. Taft, Frank Abbott, A. O. Hunt, Executive Committee.

OUR AFTERMATH.

THIS "Patent Dentrifice" is about the cheapest thing to manufacture that I know of. It's mostly chalk. How about porous plasters? They are mostly holes.—*Medical Review*.

A THIRD (?) SET OF TEETH.—Davis Southerland, of Seymour, Ind., a hearty man of 74 years, shed his last tooth several years ago. Recently he has complained of a peculiar soreness of his gums, and he has just finished cutting his third complete set of teeth.—*Daily Paper*.

ACCORDING to *Pearson's Companion*, the worship of teeth would seem to be rather more general than is usually supposed. Buddha's tooth, we all know, is preserved with the greatest reverence, but the teeth of other animals besides man are venerated; for instance, the Cingalese are said to worship a monkey's tooth, while with the inhabitants of Malabar and Tonga an elephant's tooth and a shark's tooth are used for the same purpose.

THE Siamese appear to have been the possessors of a tooth from a sacred monkey, and this was carried off by the Portuguese, along with much gold and precious stones. How much they valued this tooth may be gained from the fact that they offered no less than 700,000 crowns for its safe return, which the Portuguese were not slow to accept. This worthless—or rather to them valuable—relic is now carefully deposited in one of the many sacred temples of the Siamese capital.

REPORTED DEATH OF A LONDON DENTIST FROM NITROUS OXIDE.—The deceased was found, by a servant, in a bent position in the corner of the room. The face-piece was near the mouth, whether held by the hand, or supported upon the knees, is not certain. The left hand seems to have rested upon the gas stand, and in this way a bruise upon the anterior surface of the wrist may be accounted for. The body was warm, there was marked cyanosis, but no pulse, and artificial respiration was of no avail.

THE POWER OF STATE BOARDS OF EXAMINERS.—On May 10th, 1893, the Supreme Court of the State of Iowa handed down its decision in the long-contested case of the Iowa Eclectic Medical College against the Iowa State Board of Medical Examiners. It was an action in mandamus to compel the board to recognize the college and grant certificates to graduates thereof, the board having refused on the ground that the college did not come up to the requirements and standard fixed by the board in its teaching and appliances. Plaintiff college claimed that the board had no power to fix the standard of a medical college and that the statute was void in that respect. The plaintiff also claimed that the action of the board was had when there were no eclectic physicians on the board, as required by statute in such cases, and therefore the action of the board was void. The court decides that the law is constitutional and valid; that the board has the power to fix the standard of medical colleges, and says there is nothing in the statute requiring that any particular school of medicine shall be represented on the board.

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- MILFORD, CLERMONT Co.
Adams, F. E.
- MEDINA, MEDINA Co.
Billings, Geo. D.
Nichols, A. P.
Thorpe, J. M.
- MARTINS FERRY, BELMONT Co.
Beazell, A. S.
Hackman, Wm. M.
Hall, Wm. H.
- McCONNELSVILLE, MORGAN Co.
Bingham, T. J.
Clossman, F. H.
Tomson, W. O.
- MIDDLEPORT, MEIGS Co.
Campbell, C. H.
Hodge, Wm. B.
- MANTUA, PORTAGE Co.
Carleton, A. A.
- MINERAL POINT, TUSCARAWAS Co.
McNell, J. C.
- MILLERSBURG, HOLMES Co.
Mackey, J. R.
- MARYSVILLE, UNION Co.
Morey, A. H.
King, W. A.
- MECHANICSTOWN, CARROLL Co.
Myers, A. W.
- MANCHESTER, ADAMS Co.
Matthews, Chas. D.
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May, A. S.
- MALTA, MORGAN Co.
Mavis, T. C.
- MONTPELIER, WILLIAMS Co.
Nichols, H. C.
- MADISON, LAKE Co.
Norton, E. L.
- MT. EATON, WAYNE Co.
Numbers, E. C.
- MC ARTHUR, VINTON Co.
Paffenbarger, A. W.
- MILAN, ERIE Co.
Perry, E. L.
Hawley, C. A.
- MARION, MARION Co.
Raffensperger, E. H.
Drake, Wm. S.
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MANSFIELD, RICHLAND Co.
 Rimpler, E. R.
 Seeley, F. N.
 Snyder, Chas. H.

MIAMISBURG, MONTGOMERY Co.
 Robinson, H. H.

MT. ORAB, BROWN Co.
 Srofe, J. A. B.

MORRISTOWN, BELMONT Co.
 Tomson, A. E.

MASSILLON, STARK Co.
 Chidester, E.
 Chidester, F. H.
 Carr, C. O.
 Yost, E. W.

MOORFIELD, HARRISON Co.
 Cope, W. G.
 Clements, J. A.

MINERVA, STARK Co.
 Davis, F.

MILFORD CENTRE, UNION Co.
 Dickey, W. W.

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 Hagerman, E. H.
 Sidener, Albert

MT. GILEAD, MORROW Co.
 Kline, H. R.
 Lewis, James

MT. PLEASANT, JEFFERSON Co.
 Withrow, A. M.

MATAMORAS, WASHINGTON Co.
 Williamson, J. M.

MT. STERLING, MADISON Co.
 Welch, W. S.

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 Marshall, L. H.

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 Talbott, E. W.
 Pierrepont, Wm. J.

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Forey, Wm. H.
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 Shaw, W. J.

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 Seeley, T. S.

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- NEW PARIS, PREBLE Co.
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Husted, H.
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Whaley K., C.
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Cunningham, L.
Cunningham, L. M.
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Van Vleck, J. A.
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Tidball, F. L.
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Polen, G. W.
- GRANVILLE, LICKING Co.
Sedgwick, Wm. H., Sr.
Sedgwick, W. H., Jr.

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 Pressy, B. J.
 Pearce, J.
 Pressy, J. B.
 Shellart, Geo.
 Shellart, J. F.
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 Minton, J. C.
 Snyder, Wm. D.
 Throckmorton, J. A.
 Tenney, C. E.
- SCHAUCK'S, MORROW Co.
 Lowe, J.
- SABINA, CLINTON Co.
 Burnett, Wm. A.
 Stadden, R. B.
- SPRINGFIELD, CLARK Co.
 Bosart, H. J.
 Converse, C. R.
 Dosche, H. R.
 Douglass, H. E.
 Grant, Edmond C.
 Hoke, D. V.
 Lewis, T. A.
 Morris, J. D.
 Oldham, J. C.
 Root, Geo. S.
 Root, C. M.
 Ramsey, Josiah
 Smith, W. H.
 Sabin, M.
- SANDUSKY, ERIE Co
 Chandler, H.
 Chandler, J. S.
 Miller, A. F.
 Stroud, Chas. Edwin
 Stroud, E. Eugene
 Peck, C.
 Waye, E. J.
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 Coffee, Jos. L.
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 Frazier, John S.
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 Corvelson, W. G. S.
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 Morrison, H. G.
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 Gibson, Wm. P.
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 Scott, J. L.
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 Kinsey, G. M.
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 Lowry, H. B.
- SIGNAL, COLUMBIANA Co.
 McMillan, Lee
- SHAWNEE, PERRY Co.
 Mann, Ed. C.
- SHELBY, RICHLAND Co.
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 Applegate, I. N.
 Barber, Lafayette L.
 Barber, J. J.
 Bigelow, A. A.
 Brake, F. O.
 Canfield, L. C.
 Cook, J. F.
 Canfield, L. M.
 Edson, H. M.
 Fleming, L. C.
 Fleming, A. H.
 Graves, W. S.
 Harroun, C. H.
 Harroun, David

Heffron, E.
 Husted, D. S.
 Hart, F. J.
 Harbauer, C. B.
 Howley, Wm. G.
 Kuebler, H. C.
 Kline, A. T.
 Miller, V.
 Miller, J. A.
 McFarland, E. E.
 Marx, O.
 Parke, M. M.
 Root, F. A.
 Rees, M. S.
 Rullison, J. E.
 Sipe, C. A.
 Snyder, H. C.
 Sheble, E. D.
 Stipp, J. A.
 Taylor, S. C.
 Van Tress, H. B.
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 Jones, B. W.
 Miles, Clarence L.

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Gordon, F. W.
 Hayford, J. W.
 Hayford, C. B.
 Martin, J. W.
 Wagner, J. F.
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 Chew, I. A.
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VAN WERT, VAN WERT Co.

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Hisey, Chas. K.

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Welch, Chas.

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Outcalt, Frank

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Sherman, J. L.

Sherman, I. N.

Sherman, Wm. W.

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THE OHIO DENTAL JOURNAL.

VOL. XIII.

AUGUST, 1893.

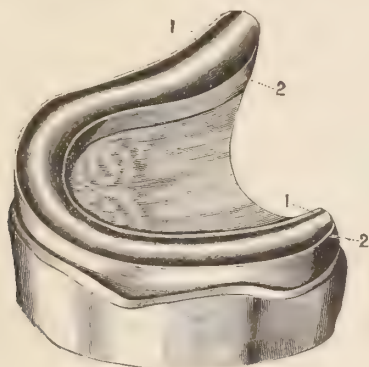
No. 8.

CONTRIBUTIONS.

USEFUL HINTS.

BY DR. WM. H. STEELE, FOREST CITY, IOWA.

Combination Celluloid and Aluminum Plate.—Take the impression; make the cast and metal die as usual. Make the die and counter in such shape as to leave a depressed margin, with raised rim about $\frac{1}{4}$ inch from outside edges of the alveolar ridge



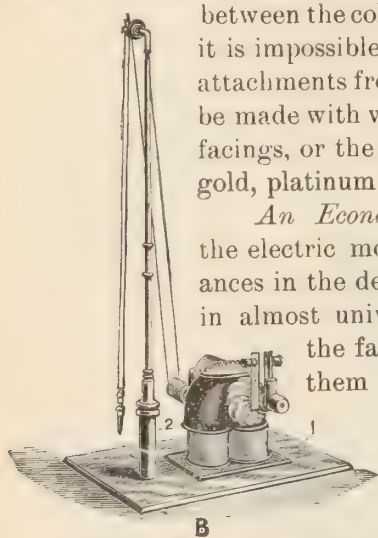
CUT A

of the plate. Now cut the aluminum for plate $\frac{1}{4}$ inch larger than the pattern all around, except at the posterior margin. In

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swaging keep well annealed and gradually turn the gum margin rim as shown in the cut. (Figure 1, cut A). When the plate is swaged, cut an aluminum collar (Figure 2). Put it on the die and swage so it will fit the plate, and reach close up to the palatine surfaces of the teeth (when mounted); fit to place and solder. Next take the bite, place in articulator and mount the teeth on wax as usual. Invest in a large size celluloid flask; when fully set, open and wash out the wax; take a lower celluloid blank, of as near the size as possible, and trim it with lathe bur until about right to fill the place of the wax gums. Put in place, and carefully close in a dry or moist air celluloid machine. When cool, open up and finish as usual. In setting the teeth, if the collar (figure 2) should interfere, trim away with bur or file to let the teeth go to place. This method gives a beautiful aluminum plate, with just sufficient celluloid for gums and attachments; the rim and collar (1 and 2) firmly holding the celluloid edges to place; when the ridge—that part of the plate

between the collar and rim—is properly roughened it is impossible to remove the celluloid or rubber attachments from the metal plate. This plate can be made with vulcanite base, and pink rubber gum facings, or the swaged base plate can be made of gold, platinum or silver.



An Economical Electric Motor.—I believe the electric motor one of our most useful appliances in the dental office, and it would have been in almost universal use to-day, were it not for the fact that the manufacture and sale of them has been so conducted that practitioners of ordinary means thought them a luxury and entirely out of their reach; and so they would be if bought as advertised and sold by dental depots generally, viz.,

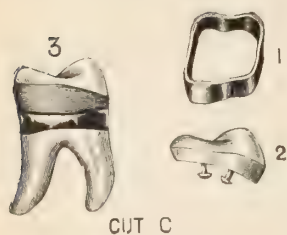
throw away your engine and engine mallet, then buy a complete electric plant for each special purpose, at a total expense of from \$125.00 to \$225.00.

One motor, if a good make, will answer all purposes, and can be made to run the engine, engine mallet, fan, laboratory lathe, and a dynamo for electro crown and bridge work, or gold

and silver plating if desired. The base of the motor will not be heavy enough for this purpose as it comes from the maker; it will be necessary to have a hard wood base made like No. 1 (see cut B); to this have a strong piece of hard wood turned upright (Fig. 2) fitted, of proper height and size, so that your engine standard will fit firmly on to it. By this means you will not need to throw away the engine, and can instantly change from wheel to motor. The battery (if local or storage) should be placed just inside the laboratory door, with the wires running up through swivel hangers in the top of the casing. When needed in the laboratory, slip off the standard, carry the the motor in and place it on the bench or floor; with four screw-eyes, through the corners of No. 1, fasten it down firmly, put on the belt and go to work. A fan can be put up in front of the operating chair and run with the motor at the same time in conjunction with the engine, by having two grooves on the pulley. The current for running the motor can be taken from electric light wires, furnished by a storage battery or (where there is no electric light plant) by a self-generating battery. A motor, suitable for this purpose, can be got for \$18.00 to \$22.00, and if in a city where there is no electric power, it can be run with a local battery of four to six cells; costing from \$2.50 to \$3.00 per cell, or with a storage battery. Buy only of some reliable dealer; always specify what kind of current the motor is to be run by, as it has to be wound to suit the current it is to be driven with. A much nicer and cheaper way to get a motor is to put it up yourself, and any one who is capable of doing a nice piece of crown or bridge work will have no trouble to accomplish the work in a satisfactory manner. The *Scientific American* publishes a little pamphlet that furnishes all instructions, and teaches the principles upon which the motor works. There are several electrical houses that supply at a cost of from three to six dollars the iron work for the armature, frame, the wire and all other material used in constructing the motor.

Rubber Porcelain Crown.—This is, as far as I know, original with myself; but be that as it may, it makes but little difference, the crown has given good satisfaction where it has been tested. For purpose of illustration, we will take a lower molar. When the canals have been properly cleansed and prepared, trim and shape the root as for any other band crown. Then take measure-

ment with binding wire, and make a narrow gold or platina band. (Figure 1, cut C).



Adjust the band to the tooth; it should be a good close fit and extend just below the free margin of the gum. Fill the band with wax, keep it dry and take a bite. In removing the bite, the band should come away with it; but if it does not, replace in its position in the wax, and mount in the articulator in such a way as to retain the band in place after the wax bite is removed.

When the plaster sets, warm and remove wax. With base-plate wax for the body, and a porcelain cusp (Fig. 2), for the articulating surface, build a perfect crown. When shaped to suit, take the model carefully from the articulator, being careful to keep all in proper position. Flask the model, so it will open, with porcelain cusp in one-half of flask, and band in the other; wash out the wax and pack with Ash-white, or the pure uncolored rubber, and vulcanize. This crown can be mouted either with posts fixed in the roots, or with posts vulcanized in the crown. If the former, set the posts in the roots permanently, and with a bur cut a place in the rubber crown to receive them, and mount with cement as usual. If to be mounted with fixed posts, the posts should be placed in position, removed with bite and band; flaked and vulcanized in the crown. Fig. 3 shows the crown complete and mounted.

[A REQUEST.—I receive a large number of letters from brother dentists asking for explanations of some points in my articles, and asking for other information, which I have always cheerfully answered; but when writing such letters always enclose the two cent stamp needed for reply.—WM. H. STEELE, Forest City, Iowa.]

PINK RUBBER GUMS.

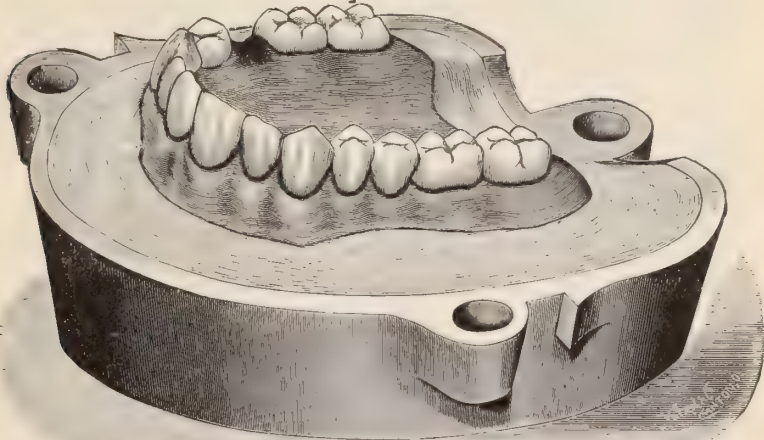
BY GRANT MITCHELL, D.D.S., CANTON, O.

AN experimental experience of several years has demonstrated that the most satisfactory results to be obtained from the use of pink rubber, are reached more through the manner of flasking and packing, than any of the purely theoretical ideas yet suggested.

It has been ascertained that "quality" is developed in as high a degree by vulcanizing at the usual temperature (320 F.) and ordinary period (one hour), as when vulcanizing has been prolonged, at more moderate degrees of heat.

It is unnecessary, then, for the dentist to devote attention to more than "artistic effect" in the matter of pink rubber. To obtain such object with but little more labor than is required in the ordinary process of packing, the case should be waxed, trimmed and smoothed, with as great care as if it were thus to go into the mouth. (As a labor-saving device, this might be recommended to many, to be tried on other cases.) A point is marked on the wax, on the median line, at a height to which the pink gum shall extend. Invest to this point, and, with spatula, manipulate the plaster while "setting," so that it leaves a smooth, straight line all around. See Fig. 1.

Fig. 1



Pour the other side, being careful to avoid air bubbles. (The easy way to do this is to thoroughly soak the model before investing. The pores of the plaster model being thus filled, it will not extract the water from the investment, leaving it stiff and unyielding to the air pressure.)

After an hour the wax may be removed, and waste-gates cut. This is by no means an unimportant part of the proceeding. Waste-gates cut as they often are, by scoring the investment with a series of radiating lines are almost useless. And in connection with gum sections, occasions fracture more often than any other cause.

Rubber softens under heat. It does not become "fluid." Especially in closing a flask. It is necessary, therefore, to make provision for the escape of surplus in such a manner as will permit a *general spreading* of the softened mass. To do this cut a deep gutter in the lower half of the flask, from within a quarter of an inch of the model to the rim, extending entirely around the flask. Slightly bevel the portion of investment left standing, from the edge near the model to the "gutter" leaving a sharp edge of the plaster standing out toward the model. See sectional Fig. 2. ("I I", investment, "W W" waste-gutter.) It is usually

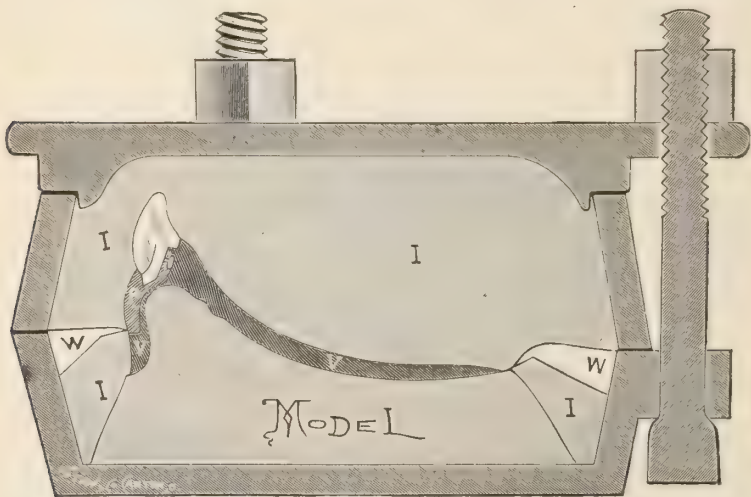


Fig. 2

better, now, to let the case stand over night, or at least, for a few hours, to harden thoroughly.

Take the wax that has been removed from the case, attach it to the end of a packing instrument, and place it at the bottom of a tall, slender bar glass, nearly filled with water; tear off a tiny corner of paper and stick to the side of the glass at a level with the water. Remove the wax, and cut, first, two strips of pink rubber, three and one-half inches long, by five-sixteenths, and five-eighths, respectively, in width; drop these into the glass, then fill with other rubber until the water again reaches the mark indicated by the paper.

Have a stew-pan, nearly filled with water, and covered with a piece of perforated tin, such as is used for strainers; take the 5-16 strip of pink, and cut fifteen to twenty small, triangular pieces, shown at Fig. 3, (C C C) and the balance of the strip, cut

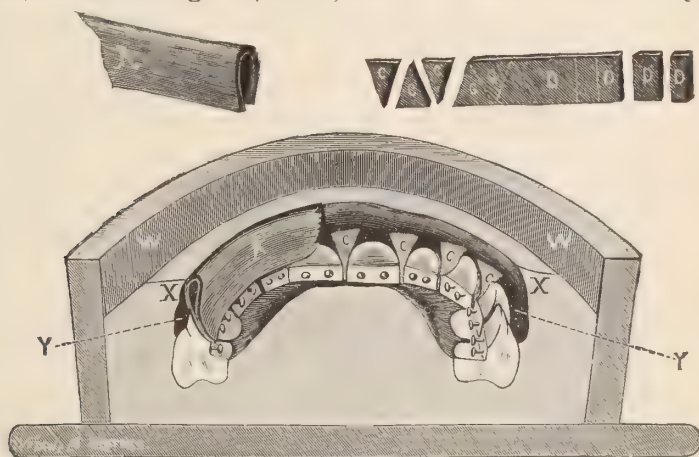


Fig. 3.

into small blocks (D D D). Distribute these over the surface of the perforated tin, and place the whole on the gas stove and allow the water to come to a simmer. (Over-heating causes the rubber to stick to the tin, and detracts from the "quality.")

Many advocate warming the flask before packing. This is unimportant. The rubber being warm will pack well, however the flask may be.

Begin, now, with a triangular piece and pack between the centrals, carrying it down to the plaster level. Continue thus to fill between the teeth, back to the first molar on either side, building out to a thickness sufficient to make the rubber nearly flush with the posterior side of the teeth.

Next, take short strips of red rubber, wide enough to pack nicely under the pins, then with broader pieces, cover a portion of the palate.

No. 1

No. 2



Fig. 5.

The spaces marked "Y Y," Fig. 3, should be filled with the blocks "D D D." Take, now, the broad strip of pink, fold it over on itself (A, Fig. 3,) and lay around just over the pins, from molar to molar, allowing the fold to extend very slightly beyond the plaster edge (X X), press it in close with the fingers, and finish the side with red rubber.

The space between the model and investment, in the lower half of the flask, should be packed solidly with red rubber, and flush with the plaster edge.

Close the flask without displacing the pink fold "A". Exert pressure with the flask press so that it will be even on all sides. The surplus thus oozing out, will cut off the pink rubber on the edge of plaster so straight, that I have been often asked, when exhibiting a specimen of this work, whether it were not "cut out and vulcanized a second time." Fig. 4, is drawn from a set in practice, made as above described.

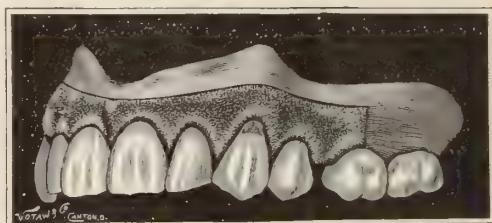


Fig. 4

Convenient packing instruments are made from the shanks of broken excavators and pluggers illustrated in Fig. 5. No. 1 belonging to a set of two, right and left. These should be well tempered, and will be found most useful forms of chisels for all sorts of laboratory work.

ORAL SURGERY.

BY M. H. CHAPPELL, D.D.S., KNIGHTSTOWN, IND.

[Secretary Board of Examiners in Dentistry of Indiana, and formerly Prof. of Pathology and Therapeutics of Indiana Dental College.]

CASE No. 1.—J. B., aged 56. This patient was sent me by Dr. Macomber, of Frankfort, Ind.

His mouth presented the appearance of having a hard boiled egg with the shell removed, and cut in halves, with one half laying over the cuspids and incisor teeth, and the lips unable to cover the substance.

The growth had been several months in progress, and recently growing rapidly, with no pain, except when injured during mastication, which was difficult. The substance was white, hard and smooth. The margins overlapping the mucus tissue, with a well defined edge, one half inch above the gum line, at the labia mesial surface, extending from the left bicuspid to right bicuspid, and three-quarters of an inch deep.

The roots of the left central, and the right lateral incisors, with a few other teeth, were remaining in the jaws, and in an unhealthy condition. I determined that the cause of the growth came from the roots under the mass that I could feel by exploring.

I informed the patient that I believed the growth was a non-malignant one, and might be called a *fibroid tumor*, and had an explainable cause, and could be cured by cutting it out completely.

From all appearance the origin was in the peridental membrane, of the left central. And the primary tumor cell must be removed, as there was no suppuration, the life was all going through the primary origin. Hence the abnormal growth.

I informed the patient, also, that all of his teeth ought to be out, and make a clean operation of it. I further suggested that we would probably have to resort to anesthetics. He informed me "I came to you to have this cut out, and if all the teeth should be taken away, I want them out, as I want to be cured, and I don't want to take anything either."

This expression of *nerve* pleased me, and we proceeded with

the operation at once. I extracted all the teeth, including the roots underneath the growth. Washed the mouth with a solution of bichloride of mercury and peroxide of hydrogen, and rested for a few minutes, until the patient said "go ahead," and as soon as the gums ceased to be troublesome, I proceeded with removing the growth.

As we might come into contact with the branch of the facial artery, (*Superior Coronary*) I made provision against accidents, and selected my instruments for use, and with a torsion forcep, I raised the palatine portion, and made an incision from the socket of the left bicuspid across the roof, near the growth, to the socket of the right bicuspid, and then dissected the parts away clear to the periosteum, and the guide as to how deep I should cut, was determined by the "gritty" feel under the bistoury, and clearing the cavities removing the tissue clean, around the cavity of the left central, and continuing the cutting, after leaving the bone to track out under the lip and leaving all the mucus membrane possible, until the separation of the mass. No blood vessel was injured, and but slight bleeding from the capillaries. Washed the mouth with the solution, and dismissed the patient, directing him to call daily, and to use the solution of listerine four times a day.

The mouth healed rapidly by granulations in less than thirty days, and a full set of teeth was made for him and the operation was a decided success, and no sign of a recurrence of the growth.

CASE No. 2.—Mrs. R. E. W., aged 36, came to me saying: "I have a bad sore in my mouth, that some say is a *cancer*, and I would like to have you look at it and tell me what you think of it." The lady had never been a patient before of mine and I was cautious in making any inquiries, but began examinations. She was wearing a full set of upper teeth on rubber base. In the soft palate near the edge of the palate mesial line bone there was an enlargement, with an ulcerated surface—a fistulous opening. I passed the silver exploring needle into the canal, coming to the anterior, and taking a track to near the apex of the palatine root of the second molar region, and there I struck a movable substance. I was now sure that the difficulty had an explainable cause, and that was a piece of tooth root, and that the sore (supposed cancer) was only a fistulous opening from an ulcerating

peridental membrane. She thanked me kindly for the encouragement I gave her, and she would see her folks and come and see me again.

In a few days she returned and desired me to give her attention. I repeated the examination and found that my former conclusions were the same, and decided to make an incision from the opening to the point of obstruction, and to be careful not to make a wound that might lead to a perforation of the floor of the palate, during the progress of healing. I used the safe ended bistoury and made the incision one and one-half inches long, and then, with a large spoon excavator, removed the obstruction, which was a piece of tooth root. I washed the wound thoroughly with the antiseptic solution, for a few days, and dismissed the patient cured of her "cancer."

THE USE OF THE BLOW-PIPE.

BY L. P. HASKELL, CHICAGO.

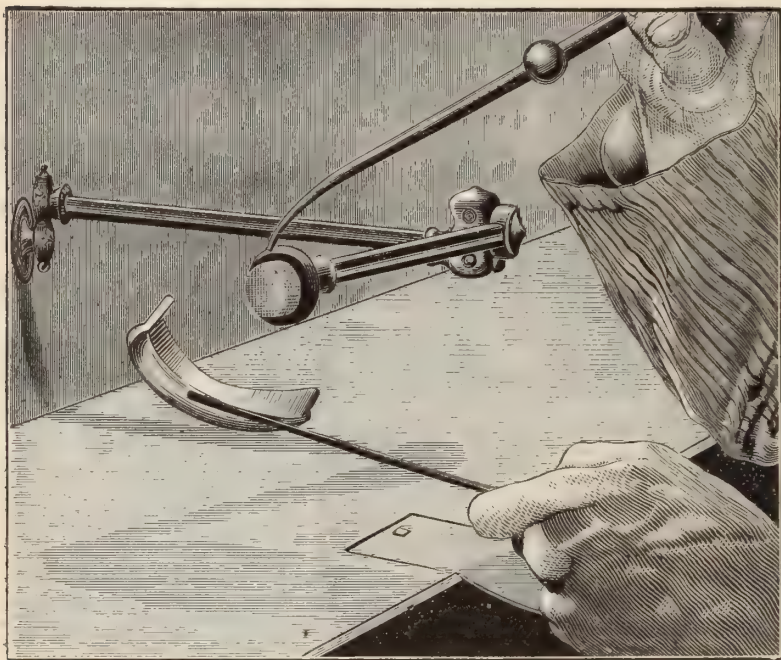
DENTISTS who come to our school often remark that they have found it difficult to use the mouth 'blow-pipe, but very soon learn to use it successfully with proper instruction, and the new beginner can succeed better with it than with the automatic blow-pipe.

The primary difficulty lies in the instrument itself. The blow-pipes sold at the dental depots, and which are used universally, are made for jewellers' use, who use low grades of solder and do not have to heat up and keep hot plaster investments. The dentist using 18, 20 and 22 k. solders, and needing to keep hot investments, needs a larger blow-pipe.

The mouth-piece of the small pipe has to be taken inside the lips and the effort to use it tires the muscles. The large mouth-piece is pressed against the lips. The aperture at the other end needs to be sufficiently large to take in the large flame of a proper soldering burner, either gas or alcohol.

For many years I constructed a soldering burner by winding fine wire over the end of a gas-pipe, to the size of a hen's egg. This gave a flame like the wick of a lamp. A few years since Dr. McIntosh, of the McIntosh Battery Co., of this city, constructed for me an excellent burner, consisting of a brass bulb

filled with fine wire gauze. These can be obtained of this company and screwed on to the end of the ordinary gas pipe, which should be of two 12 in. pieces with a universal joint, so as to be placed in a convenient position on the bench.



The blow-pipe must be held in such position as to control the entire flame, always remembering that the flame must be made *blue*, or sufficient heat will not be secured. Do not blow *too hard*, only enough to control the flame as it comes from the burner. In order to keep a steady blast do not allow all the air to escape from the lungs but keep the *diaphragm constantly distended*, and using the cheeks for bellows and the tongue for a valve, the process is an easy one.

A blow-pipe such as I have described is furnished by some at least of the dental depots, and is known as the "Haskell Blow-pipe." If the curved end is more than two inches long cut it off to that length, and see that the hole is 1-16 inch in diameter.

The solder should be cut small and laid where it is needed, so as not to have to "draw" it from one place to another. The

borax and solder should be applied before the case is heated up, so there may be no delay when ready for the blow-pipe. Of course I am referring to the soldering of teeth on plates or bridges. Heat up the case over a large gas burner as hot as possible; and a convenient soldering pan for such case can be made of sheet iron, a half circle 3 in. diameter upon the straight side, with rim $\frac{3}{4}$ in. wide; handle 12 in., fastened diagonally to the straight side.

Place the case so the heat shall be thrown from front to rear, in order to heat the plate first so it shall be hot as the backings when the heat is thrown upon the solder.

Never use a lower grade of solder than 18 k. In fact lower grades will not work as satisfactorily as higher grades, when *properly made*, because melting before the plate is hot enough it rolls in a ball, where otherwise it sweats down and blends where it was laid.

The S. S. White solder I have found a standard article, always reliable, and I mention it because it can be had in all parts of the land. There are other makes, such as Goldsmith Bros., of Chicago, refiners, which I have used with satisfaction.

A TALK ON COMBINATION FILLINGS.*

BY DWIGHT M. CLAPP, BOSTON, MASS.

SOME six or seven years ago I began filling with amalgam and gold, uniting the gold with the fresh amalgam, and finishing the filling at one sitting, thereby securing the good qualities of each of these materials, and making a filling as it seemed to me, theoretically and practically destined to be of real value.

Five years ago, I had the honor to accept an invitation from this Society to give a clinic at one of its meetings, showing the method of making these combination fillings.

Four years ago last summer I read a paper on the subject before the New York Odontological Society, which was published in the *Cosmos*. So far as I know, that paper was the first published, giving a method whereby gold could be united with amalgam so as to make a strong union. Since that time much has been written on the subject, and now hardly a dental journal can

* Read before the Vermont State Dental Society, March, 1893.

be read without finding some kind of a combination filling mentioned.

I have recently re read the article above referred to and find that I could not change what was then written were I to rewrite it. I might, indeed, add much to it, but could take nothing away, and, to-day, after all these years of trials and experience, I believe that the filling there described stands unrivalled as a tooth saver in those cases where it is indicated.

Any one with a fair amount of skill and proper instruction can put a good filling into a cavity that has only favorable conditions. To save teeth that are frail and far gone, and make them do more years of service is what makes us of value to our fellow men, and it is this that is going to endear us to our patients and make our services absolutely indispensable.

Do not think I flatter myself that I shall give you anything new to-day. I come, rather, to learn from your collective experience. What I say will be said with the hope that it will unloose your tongues, thereby turning into the hopper of discussion your united wisdom and experience, which, when finely ground and carefully bolted, will furnish each of us with a sack of knowledge for home consumption. I suppose that to-day nearly half of my fillings are a combination of materials, and I believe I am doing better work than ever before.

Now, why may a combination filling be better than one made of a single material? Because it enables us to use each kind of material in that portion of the cavity to which it is the best adapted. Few, probably, will deny that amalgam will preserve a tooth better at the cervical portion of an approximal cavity in a molar, or that gold with its greater edge strength is better for the masticating surface. Again, it enables us to make tooth and filling of one mass, or nearly so, so to speak, the filling thus helping to support the tooth, instead of being supported almost entirely by it. For instance, if a cement filling is placed in a cavity the cement adheres to the tooth and if the walls are frail it helps to strengthen them. Now, if, when we have put some sticky cement into a cavity, while it is yet soft we press some amalgam into this sticky cement, we have an adhesion between tooth, cement and amalgam, and the whole makes a solid mass, much stronger than if the cavity were filled with material held in by pressure and the shape of the filling only.

It may be illustrated in this manner: Suppose we are to build a frieze for a bridge out of granite blocks, will it be stronger if the blocks are simply piled one on top of the other, or if each block is united with its neighbor by a layer of the best Portland cement? Therefore, I say, that by combining two, three and sometimes four different materials in one filling, more satisfactory results may often be obtained than by the use of a single material.

You will readily understand that I am not advocating this as an easy way of filling teeth—although often much time and strength are saved—I present it as a good method of saving teeth, not for saving time or skill.

Of all the filling materials we have, cement, probably, has the most good qualities. It is of good color, is adhesive and is a good preserver of teeth, but it lacks the one most essential quality—durability.

Now if we can fill a considerable portion of large cavities with a material which is capable of taking the place analagous to that of Portland cement in the bridge frieze, and protect it with some other material or materials that have the quality of durability, we are, at last, doing much toward arriving at the ideal filling.

THE ACID DIATHESIS IN ITS RELATION TO DENTAL PRACTICE.

BY CHAS. B. ATKINSON, D.D.S., NEW YORK.

PROPOSITION.—The acid diathesis is an immediate antecedent to a variety of purulent lesions of the human system, in general, and has special expression in the oral cavity, thus bringing it particularly under the observation of the dentist.

Argument.—Caries of teeth is undoubtedly of complex origin; but it is believed that a first postulate for the invasion of the enamel must have for a sufficient influence a disintegrating power antagonistic in a chemical sense to its structure.

This structure we accept to be alkaline in the character of its constituents, therefore chemistry gives us acid as the antagonist to produce the combination under local dynamic potency, which separates from normal vital union the alkaline elements of the protective envelope of the tooth, and exposes the skeleton of

cartilaginous tissue, with its organic contents, to the tender mercy of bacilli leptothrix, *et al*, through whose destructive rapacity the tooth body—dentine—is rapidly wasted to more or less degree until intelligent operative interference terminates the local lesion.

Shall this condition be allowed to recur, or shall efficient observation and sufficient prescription at the hands of the dentist preclude its return?

The portal of the system is largely under the dominion of the dentist. Here may be early recognized aberrant symptoms of systemic derangement. For instance, a cherry-red tinge of the gingivæ, due to gastritis; aphthous patches, due to the same condition; mottled cherry and blue gum surface, especially indicating lesions of suppurative possibilities, as "pyorrhœa alveolaris," catarrh, necrosis, chlorosis and nephritis, associated with this last particularly, œdema of the gingivæ will be found, the gums swelling upon slightest irritation, without apparent sufficient local cause. These indications bring to notice a consideration of discriminative diagnosis to eliminate unproved connected symptoms of a general character, when the true diagnosis may be had without ambiguity. In diagnosis lies the possibility of cure. Did one but know the disease *certainly*, its cure becomes a matter of faithful attention of the operator and obedience of the patient.

Constipation produces a reflex congestion upon the general system. The congestion is thrown to the periphery, the skin and mucous membrane explode the surcharge, and the activity of deliverance of heat produces a ferment in these localities and *acid* results.

Gastritis is adjunctive to this condition, from the lining of the stomach being mucous the acid in this organ intensifying the irritability and extending up the esophagus, the throat, nose and mouth become involved. Laryngitis, catarrh, "pyorrhœa alveolaris," and caries of teeth result, again to be referred to *acid*.

The pseudorific system is designed to liberate effete blood products, and when acid in excess is delivered to it for elimination, *hives* notify us that we again have *acid* to deal with.

The mucous follicles are lubricant in character, that is their office is to maintain this tissue in a flexible condition. Acid blood is thinner than alkaline, therefore secretions under its influence become more profuse, the mucous membrane delivers

greater volume of fluid and in its excessive activity inflammation results, intensifying the inducing *acidity*, adding to the systemic diathesis the local expression observed in the surface inflammation.

With this mucoid irritability accepted as due to acid, we may associate the disruptive disposition of tissue, as in abscess of necrosis, the pulp, antral disease, "pyorrhœa alveolaris," etc.

Pulp stone is related to renal calculus, in so far as being induced by a surcharge of acid, and with pulp stone we may look for renal calculi.

Here again does the oral cavity present a systemic diagnostic field within the scope of dental practice. In hot weather, more especially, are the tissues congested from the activity of the circulation, the pseudoriferous glands are actively engaged in throwing off moisture to the surface and a peripheral irritability succeeds which an alkaline bath will be found to correct. The principle of hydropathy is of grand import, did water do all the washing the system requires. Cleanliness is indeed next to godliness, if we accept purity of body and soul to be nearly related. The effect of the alkalies is to attract water from the tissues and to cause a more or less free flow through the kidneys and bowels. The sweat is not always increased. Usually it will be found diminished ; but a soft and comfortable skin results without odor. Just as soon as odor appears in the sweat, just so soon is an alkali demanded by the system for its correction, by diverting and neutralizing the *acidity* the cause of the fermentation in the pseudoriferous glands. These alkaline baths will be found especially beneficial to the habitual user of malt and fermented liquors and sweet wines.

Peripheral irritation, induced as a constant condition by the acidity of the circulatory medium, gives us a basis for susceptibility to abscess and other purulent lesion, as ulcer.

The strumous diathesis is blamed with a tendency to suppurative lesion, and with coarse texture of tissue, results in great territory involved in case of abscess, because of its lack of resisting power that a closely knit tissue gives. The strumous diathesis undoubtedly has its expression of type by inheritance, which is delineated in the structure of the general tissues of the body ; but added to this inherited, habitual specific condition of the tissues is a debility of the organs in general, which results in an addition to the aberration from normal type. These organs,

and especially the stomach and liver in strumous subjects, may be very largely corrected by alkalies, and the purulent tendency, as referred for origin to *them*, be considerably controlled.

One reads of the *uric acid diathesis*, *rheumatic diathesis*, *gouty diathesis*, and "*calculus*" *diathesis* as specific habits of the human system. Are not these distinct expressions of a general *acidity* the *local manifestations* of which are only noted in the above descriptions.

With regard to the rheumatic diathesis, the serum is claimed to carry the calcareous elements (and the synovial fluid being chiefly serous) to the joints, in cases of acid irritation, will the larger and more frequent deposits tend.

In "*pyorrhœa alveolaris*" the initial lesion is believed to locate, because of a rupture of the continuity of the connective tissue, between the alveolus and root, or gingival border and root. When the acid resident in the serous fluid acts more intensely and the deposition of calcareous substance succeeds with inflammation, until a pronounced case of "*pyorrhœa alveolaris*" results with its attendant progressive phenomena.

A diagnostic aid is suggested to be in tests for acidity of the saliva, urine, sweat, mucous exudates and fæces, through which may be had assistance in localizing the prominent site or sites giving expression to the *acid diathesis*.

In corroboration of the suggestions sought to be conveyed in the foregoing statements, the exhibition of alkalies in solution will be found to aid cure in a majority of purulent lesions and in many instances will abort threatened abscess.

Bitter and acid tonics find the alkalinized tissue in a more receptive condition than when the system as a whole is under the dominion of acid.

The use of hypophosphite of soda, in *aqueous* solution (not in syrup), 20 to 60 grs. per diem, combined with other indicated alkalies, on occasion, as lime, magnesia, lithia, etc., is advanced as the basis of cure in suppurative lesions, to be aided and hastened by such local treatment as may be required whether through stimulation, tonization, antisepsis, or the removal of the effete surface accumulation, or the product of the destructive metamorphosis of tissue.

THE ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

Continued from page 318.

THE meeting was called to order by President Fullerton of the Iowa Society.

Dr. G. V. Black then read a paper entitled

THE ANCHORAGE OF FILLINGS.

He said, in order to safely stand the test of usage a filling that is exposed to the strain of mastication must be able to support the entire force capable of being exerted in the closure of the mouth. The great mass of proximate fillings in the bicuspid and molars are in composite cavities, and are thus exposed upon one surface to the force of mastication. These fillings must be able to bear the entire strain exerted by the most forcible closure of the mouth. It may be said that the filling itself is not called upon to bear all of the strain of the closure of the jaws, but this relates only to the more ordinary usage of the teeth. At some time a bit of bone or other hard substance will be caught upon the filling itself and take the entire strain, and if its anchorage is insufficient it will be displaced.

Both the tensile strain and the crushing strain of gold built up from foil are constantly brought to the test in fillings, but we have had no means of accurately determining either. We have only the observation of practical experience, unscientific and inaccurate.

A failure in the anchorage of fillings is shown first by the fillings being dislodged, or forced out of the cavity by the force of mastication. Second, by breakage of some wall of the cavity, against which anchorage has been placed. Third, by a slight movement of the filling under the strain of usage which is sufficient to render its margins imperfect, or leaky.

Failure of the first kind is rare among the better class of operators and occurs only as the result of some oversight or accident.

The second is much more frequent than it should be, and results from errors of judgment in the arrangement of the strain upon the frail walls.

The third seems not to have been generally recognized. It occurs when the *size* of the anchorage points are insufficient so that there is a bruising of the metal under the strain of usage in such a way as to allow the filling to move slightly and thus render the margins imperfect. This gives opportunity for the recurrence of decay.

In the proximate cavities in the bicuspid and molars, which include some portion of the occlusal surface also, it is necessary to provide in anchorage, against two important directions of strain, the *crushing strain* and the *tipping strain*, or the ability of the filling to support the load brought upon it and the ability to withstand lateral strains calculated to force it out of the cavity.

The crushing strain is transferred through the filling to the cervical wall of the cavity in this class of cavities. Therefore it is the cervical wall of the cavity that must carry the load. In this I meet with two forms of insufficiency which combine to cause failure. First the seat of the filling is insufficient in size. Second, the seat of the filling is defective in form. In order for the filling to bear uninjured the strain of mastication the seat of the filling upon the cervical wall of the cavity must be sufficient in extent to carry without injury to the wall of the cavity, or the filling material, the strain of the closure of the jaws, otherwise the walls will be crushed, or the gold resting upon it will be crushed, either of which will be a cause of failure. For if the gold or the wall give in the least, the margins of the fillings become imperfect and leaky, and recurrence of decay with the final loss of the filling is the result.

There is no form of surface that will carry a load placed upon it so well as a flat surface at right angles to the direction of the strain. * There should be neither slopes nor rounding of any kind and of all things there should be no slopes toward the proximate surface of the filling except the beveling of the enamel margin necessary to the formation of a perfect marginal edge. Every such slope tends directly to the displacement of the filling with every crushing strain brought upon it.

If the seat of the filling be well formed there can be no advantage in making it larger than that surface of the filling exposed to the strain.

In fillings of this character there should be no undercuts in the sense of making the filling broader buccolingually at the cer-

vical wall than at the occlusal surface, for whenever this is done every crushing strain has a tendency to cause the filling to leave the walls of the cavity at all points of undercut. The filling will be much stronger if the walls are so cut away that the cavity will be slightly broader at the occlusal surface, for in this case buccal and lingual walls will become a source of support instead of a source of weakness. This matter of so shaping the cavity that the building of the filling will be made easy should not be ignored. The plea that tooth structure should not be sacrificed is wrong both in theory in practice. The question to be answered in the operation is, how can this tooth be made strongest, or how can it be made to endure the longest, giving good service?

The tipping strain is the result of any force that is brought in such a way as to pry a mesial filling to the mesial, or a distal filling to the distal, and thus throw it out of the cavity. If the anchorage against the tipping strain is ample it should be built to full easy occlusion except that the marginal ridge should not be restored. If the anchorage against the tipping strain is not considered as perfectly good and strong, the occlusal surface should be rounded toward the proximate surface more or less, and in such a way as to cause food to slide over the filling without being so caught as to cause a serious tipping strain. However, this rounding should never be carried to such an extent as to cause food to wedge into the interproximate space and thus become a source of injury. The filling must be made to protect the interproximate space whatever else be its shape. In many cases the tipping strain may be materially reduced by grinding away a cusp from an opposing tooth or modifying its form so as to change its direction of force.

This strain is not alike in all positions. The teeth generally do not occlude perpendicularly end to end, but following the curve of the arch they are more or less inclined to the mesial. Again the motion of the lower jaw is not directly up and down, but swinging on the condyles, its motion is in the arc of a circle closing upward and forward. It happens therefore that in the bicusps and molars of the upper jaw the tipping strain is much greater in mesio-occlusal cavities than in the disto-occlusal, because the motion is such as to bring the crushing force in a direction calculated to force them out of the cavity toward the

mesial. This strain is also greater in strongly bell crowned teeth than in thick necked teeth, because of the greater *overhang* of the mesial surface. In the lower jaw the mesial and distal cavities are about equally exposed to tipping strain.

In small cavities, those occupying one-third or less of the proximate surface, bucco-lingually, anchorage against the tipping strain may be made by grooving the buccal and lingual walls of the cavity. These grooves should be placed as deeply, *i. e.*, as far as possible from the surface of the tooth, in the dentine as the depth of the cavity will allow. There is nothing gained by cutting them deeply into the buccal and lingual walls while the depth materially weakens the tooth. They give greater strength when made broad and shallow than when made narrow and deep. The rule is that the greater the surface of gold, solidly packed, that can be made to impinge upon the anchorage surface the stronger the anchorage will be. Narrow deep grooves are contra-indicated while pits are valueless for this purpose.

Now gold is very malleable and when only a surface of gold is depended upon to hold against the tipping strain, this surface is liable to be sufficiently crushed, battered or condensed, by impingement against the narrow points of anchorage to allow the body of the filling to part slightly from the walls.

With this slight condensation of the gold the increased hardness becomes sufficient to withstand further movement and the filling remains firm. But the movement has destroyed the value of the filling by rendering it leaky and thus giving opportunity for the recurrence of caries. It is much better to anchor against slight slopes having the elements of the dovetail in which the strain is distributed over a more considerable surface thus preventing the condensation of the gold against the anchorage points.

When the cavity occupies more than the middle third bucco-lingually of the proximate surface the rule should be that no attempt be made to anchor against the tipping strain by grooves in the buccal and lingual walls, for then the necessary grooving will become a source of weakness and render the walls too frail to safely support the filling. When a cavity has become of this extent it ought to be cut widely to the buccal and lingual in order that its margins may be so removed from near approach to the neighboring tooth as to render them self-cleansing—extension for

prevention of recurrence of caries—and this renders any sufficient anchorage by grooves in the buccal and lingual walls impracticable. In this case and in all larger cavities the anchorage should be made by a dovetail cut into the occlusal surface of the tooth. This cut should not be made very deep, a trifle more than the thickness of the enamel generally being sufficient. Indeed a deep cut in this position becomes a source of weakness instead of strength for the reason that it renders the buccal and lingual cusps, especially in bicuspid, liable to be split off by the force of the occlusion, a matter that must be especially guarded against. We must always remember that in preparing our anchorage we should guard the strength of the tooth in its entirety. This dovetail in the occlusal surface should have upon its buccal and lingual walls such a form that the filling cannot slide out of the cavity. The bottom of this cut should be flat and well squared out at its angles in order to form a firm seat for this portion of the filling, and especially there should be no slope toward the open cavity. In many cases the original decay will be of such form as to make it difficult to avoid some such slopes, but every available means should be used to form steps, and in this way destroy the influence of the slopes.

In a few cases I have seen solid fillings in such dovetails stretched by the force of mastication sufficiently to allow the main portion of the filling to leave the buccal and lingual walls of the cavity and thus destroy the filling. For this reason I often fill these anchorage slots with platinum gold when a very heavy filling is to be supported. Judging from close observation directed to this point I am of the opinion that platinum gold well welded and condensed will bear from one-third to one-half more strain than pure gold in such positions. The anchorage slot can therefore be that much smaller and give the same support, and the cusps of the tooth need not be weakened by so deep a slot.

In cases in which the buccal and lingual walls, one or both, are thin and frail, so that a portion of the wall of the cavity becomes liable to breakage by catching some hard substance upon it, it should be cut away sufficiently to build the gold over its margin in such a way that the strain will come upon the filling itself instead of the wall. This part of the filling should be carried sufficiently far that nothing can catch upon the margin of the frail wall and also the filling material should be thick

enough so that it will not be crushed by the strain of mastication. A very thin layer of filling material over such a wall is worse than useless, for it is likely to be crushed against the wall in such away as to break it down.

(To be continued.)

ALL SORTS.

Sillito (W. H.) on Repairing the New Dunn Syringe.—If the hard rubber tube wears loose on the glass barrel, both being tapers, they can be made to fit tightly again by grinding a little off the end of the glass barrel.

Whitslar (W. H.) on Two Suggestions—No. 1.—For bracket table get heavy paper, cut the size of your bracket table, and use in the place of a napkin. Paper is cheaper than the cost to laundry napkins, cleaner and easier to adjust to place. A pale yellow color is softer and easier to look upon than other colors. If possible get an unsized paper about as heavy as writing paper.

No. 2.—For investment use strips of wire fly screen to bind plaster so that it will not crack in drying out. The meshes of the screen stuff form excellent attachments for the plaster to adhere to.

Heller (H. D.) on an Effective Local Anesthetic.—There are a great many anesthetics being sold by county and city rights about the country, for the painless extraction of teeth, by the use of hypodermic syringe. I have tried samples of nearly all of them. I will give you a recipe which is better than any of them—

R	Muriate Cocaine,	-	-	-	-	-	9 $\frac{6}{10}$ grs.
	Carbolic Acid,	-	-	-	-	-	10 minims.
	Chloral Hydrate,	-	-	-	-	-	8 grs,
	Rose Water,	-	-	-	-	-	1 ounce.

Grant (Dr.) on Attaching Amalgam or Gold firmly to Porcelain.—Quite a while ago I read an advertisement in one of the dental journals, in which some man claimed that he could attach amalgam or gold firmly to porcelain. I thought then that if he did it he must do it in some such way as the china painters put on gold in decorating. To see if it could be done, I made a solution of gold in aqua regia and precipitated it, washed out the precipitate, and after drying it, made a flux with that and nitrate of bismuth, using plenty of gold. I then made several crowns and set them on molar roots with amalgam. The amalgam made an absolute union with the heavily gilded surface. You

can get enough gold on a tooth by this method so that it will hold amalgam firmly. There is no question but what it is an absolutely perfect joint.—*Extract Inter. Journal.*

Carborundum.—A recent issue of *Invention* contains a short account of this new material. It is composed of carbon and silicon, in proportion of one atom of each to a molecule. The combination of the two elements is brought about by electrical action, and consists of the introduction into a box of clay of an intimate mixture of carbon and sand, into each end of which project one or more rods, or electrodes, of carbon, and through these and the mixture of carbon and sand passes a current of electricity of a sufficient quantity, for the proper length of time, to fuse the mass, and cause the reduction of the contained silicon and its subsequent combination with a portion of the carbon.

When removed from the furnace the carborundum is in a cinder-like mass, consisting of crystals varying in size. The mass is then treated with acids to remove impurities, washed, dried and crushed, the crystals being then separated in sizes or degrees of fineness. The most unique property of the compound is that by its means one is enabled to cut and polish diamonds, and it seems it is proving a valuable adjunct to the dental office.

Coffin (Walter) on A Simple and Easily Made Strengtheners for Vulcanite Dentures.—He described a simple and easily made strengthener for inserting in vulcanite, especially adapted for inferior dentures, partial or whole, which he had used extensively with great satisfaction for many years. It consisted of a metallic strip or wire of any section, preferably of oval or half-round platinum wire, and then wound or wrapped from end to end in an open spiral with a thin gold wire of about the size ordinary gold springs are made of, the whole soldered together with very small pieces or filings of gold solder. The platinum wire is first bent as accurately as possible to fit the model, then wrapped and soldered. It then becomes very rigid, but still slightly elastic in all directions. Any clasps, bands or gold backings being used may be soldered to the strengthener. When not so held in place, a length of the thin wrapping wire may be left free at both ends of the strengthener and caught in the plaster when investing, to secure the exact position of it in the vulcanite. It is claimed for this form of strengthener that no line or plane of weakness is determined in the vulcanite; that there can be no longitudinal slip on bending; that the plate may be finished and polished right down to the gold without possibility of stripping or peeling in wear; that the strengthener occupies the whole thickness of the plate, showing slightly on both surfaces, while affording a maximum of strength.—*Brit. Dental Jour.*

McCandless (A. W.) on the Preparation of Teeth for Crowns and Bridges.—Regarding teeth which are to be used as piers or abutments for bridges. The first question to be considered here is the devitalization of the pulp, which must be done *always*. This rule is so general as to admit of *no exception whatever*. Why? Because a tooth with a live pulp will not permit sufficient cutting down to insure thorough work. I know this to be true by an experience extending over a number of years, and the bridges I have attached to vital teeth are the only ones that have given my patients trouble and myself annoyance and chagrin, and I am free to acknowledge right here that the bands in those cases were not nearly as small as they should have been for a perfect adaptation. Why? Because the teeth became so sensitive the patient could not endure the pain of further cutting down.

Suppose, for instance, a tooth could be cut down sufficiently for a perfectly fitting band (but remember it cannot), that tooth will be so sensitive to thermal changes that the patient will have no comfort whatever.

You who have been adapting crowns to vital teeth try this method and you will be surprised how much smaller the teeth will seem to grow. —*Extract Dental Review.*

Atkinson (Chas. B.) on Phenate of Cocaine.—Phenate of cocaine is a preparation of phenic acid and cocaine in nearly equal parts, and for convenience of further dilution is sold in 50% alcoholic solution. This association of the carbolic acid with the cocaine indicates against its hypodermic use. In its 50% strength it will coagulate albumen and its topical application to mucous surfaces will be followed by a slight slough. This may often be avoided by wiping glycerine over the dried gum surfaces before applying the 50% phenate. The phenate 50% may be diluted to any extent desired by adding alcohol and water equal parts, A solution thus made of 25% strength will not coagulate.

Phenate of cocaine is a local anæsthetic of considerable service in extracting teeth. It is applied full 50% strong (or diluted, if desired) upon the dried gum about the tooth. A pledget of cotton forms a convenient means of placing it about the tooth, where it should be left in contact for from three to five minutes at a time, to be repeated if anæsthesia be not sufficient. The patient should be cautioned not to swallow and so avoid numbness in the throat, as the phenate promptly produces this condition in all mucous tissues. The phenate of cocaine is more especially useful in operating in soft tissue, as opening abscesses, removing tumors, treating exposed pulps and kindred operations. It has the merit of being a powerful analgesic without the danger of constitutional impression.

White (Gordon) on Getting Correct Articulation of Gold Crowns.—For the making and articulation of gold crowns I find no plan more simple, or more perfect, than one I have been making for the past two years. After having made the band and contoured it with pliers, or otherwise, select from a collection of molar dies the die nearest the size of the band, and swage the grinding surface of 22-karat gold, very thin—34, 35, or 36 gauge—on a block of lead or soft wood. Now stick this to the band with the smallest particle of solder. Trim the cap, particularly proximal sides, so that it will pass readily between the teeth. The band is now placed into position. If force, sufficient to bend the grinding surface, is required to get the band into position, place under the cap an ordinary foot plugger, and push the band into its place. The patient is directed to close the jaws, and owing to the thinness of the gold grinding surface the impression of the opposing tooth is easily made, thereby securing the correct bite. The crown is now removed. The cap and band are held together by the ordinary soldering pliers, and the cusps are filled with 20 or 18 karat solder, which, of course, unites the band and cap. The crown is now finished in the ordinary way. This is as good a crown as can be made, and recommends itself because it is so quickly made.—*Items.*

Dunbar (L. L.) on Inlay Fillings.—For minute “pinhead” cavities there has been recommended the use of different sized cylinders of vulcanized white rubber. These are inserted with oxy-phosphate, and after being cut off, are well polished, making a more durable filling than oxy-phosphate alone, and quite as sightly. The use of this method ought to be more general, as it is a really valuable means for meeting the cases under consideration. Starting from this idea I have been for some time successfully employing glass cylinders for the same purpose, using the old-fashioned opalescent glass, so common thirty or more years ago as curtain supports in parlor or drawing-room decoration. A piece of this can be heated over an ordinary Bunsen flame, and, if care is used, can be drawn out into round sticks of various sizes down to the diameter of an ordinary pin. No color shading is required, or, if necessary, cylinders of various shades can be provided, although this form of glass presents a shade more nearly in accord with translucent enamel than any result ever attained by fusing glass inlays. They are more easily handled, and half a dozen satisfactory inlays can be made while one is being made in any other way—the only requisite being several sizes of fissure burs (square end) with an assortment of glass cylinders of corresponding diameters. Prepare the cavities, several at a time, taking the precaution to isolate the teeth to be operated upon by applying the dam. After selecting the appropriate cylinder for each cavity, nick it on two sides

where it is designed to break off, and the inlay is ready for insertion. One batch of oxy-phosphate will then do for all that have been prepared. After allowing a sufficient time to set perfectly, the protruding cylinder can be stoned down and polished, the result thus attained will be an inlay nearly invisible, in every way satisfactory from an artistic standpoint, and, what is better still, at a saving of time and expense that will be appreciated by patient and operator alike.—*Extract Pacific Coast Dentist.*

Helyar (Wm.) on a Method of Crowning Roots.—In this method the nerve canal is enlarged sufficiently to receive full sized pin-wire to the usual depth; then for about $\frac{1}{16}$ of an inch from the orifice it is further enlarged and kept oval in shape; a groove is then cut on either side of the oval, and a piece of platinum the size of the oval soldered to the pin at the depth of $\frac{1}{16}$ of an inch from the surface, so that when inserted and given a quarter turn it will be securely locked into the root. The length required to project into the crown should be marked, and a thread cut on the pin to a point equal to the surface of the root. A cone-shaped nut should be made, and a corresponding thread tapped into it. A ferrule should then be fitted to the root, and a piece of platinum fitted to the surface of the root, and the two soldered. A hole rather larger than the pin should be made, and into it a funnel-shaped piece of platinum should be soldered; a flat tooth is then fitted, the lingual surface being filled and shaped to receive the opposing teeth. The nerve canal should then be dried, and the pin inserted with warm gutta-percha. The crown having been warmed should be pressed home, the nut screwed securely, and the pin finished equal with the surface of the nut. The pin is thus converted into a tension rod, vastly increasing the power of resistance brought against the cutting edge of the tooth; and is thus supposed to offer greater resistance to direct downward strain than any other form at present in use, affording support for the retention of a denture almost equal to the natural tooth.—*Jour. Brit. D. Asso.*

Robertson (J. E.) on a Method for Retaining or Holding Bridge Work.—The method used by Mr. Robertson is claimed to be of use in cases of movable bridge work, where a root, the edges of which are decayed some way below the gum margin, is required as an anchorage. It is practically a development of Buttner's cap, but instead of the solid gold pin we have a platina tube for the insertion of a split platina pin, the tube used being taken out of an old tube tooth. Having shaped the root below the gum, a collar is made according to size of trephine used, that will stand level with the gum when fixed; across this collar on its

upper border a thin strip of metal is soldered which carries the tube, leaving a space on the two sides of the tube to allow, when the collar and tube are in place on the root, amalgam to be packed flush with the upper edge of the collar, a pin to fit tube being held in place whilst packing is being done, to prevent collapse. If the amalgam is used very soft to start with, and then dry, and more dry amalgam added, it becomes hard so quickly that the pin can be drawn out at once without risk of displacement. When the amalgam has thoroughly set it fits so closely to the collar and tube that we have a smooth metal surface for our bridge to rest on, and a strong anchorage for our retaining pin. It is more satisfactory to do the operation in two sittings, for if after the root is shaped it is packed with soft gutta-percha for a day or two, and the gutta-percha spread over the surface of the root, the inconvenience of the bleeding gum is got rid of.—*Jour. Brit. D. Asso.*

Harrison (F.) on a Simple New Wedge Post for the Retention of Large Contour Fillings.—This method demonstrated the value of wedge posts for the retention of large contour fillings. The early stages of the operation consist in the removal of all softened dentine and carious enamel, with the application, if necessary, of some devitalizing material to the pulp. The root canals are then treated, being rendered as healthy as possible.

Special care must be taken that the apex of the root canal which is going to receive the post should be filled with a short strand of filoselle silk, and the remainder of the canal with Hill's gutta-percha; otherwise the force used to insert the post might send the gutta-percha through the apex, and so be a cause of irritation.

The wedge post is made of gold or dental alloy from ordinary pin wire, the posts varying in length from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch. The shape of the post is that of an evenly tapering wedge.

Three flats are filed upon the wire in such a way as to bring the wire to a point, so that upon cross section at any place the wire is distinctly triangular. The post is slightly curved in its long direction, and may be used with a complete rivet head, or one side of the rivet head filed off, or without any head at all.

The post is inserted by grasping the head or thick end with a pair of torsion forceps, the post being held in the flame of spirit lamp, and when hot introduced into the gutta-percha in the pulp canal—and pushed home in such a way as to bring the thick end of the post well into the centre of the large cavity; with the heaviest blow of the hand mallet the wedge of the post being made to firmly engage the root canal, one blow should be sufficient. Too much hammering will loosed rather than tighten the post.

Gold or amalgam may now be worked around the post as desired, and largely contoured if thought desirable. The advantages claimed for this method are simplicity, strength, durability and saving of time, and one is able to make strong work with very little crown substance remaining.—*Jour. Brit. D. Assn.*

Barber (L. L.) on Facing with Walker's Gum Facing.—When the case is waxed up try in the mouth—if the fulness and shape is correct—remove and carve wax festoons and smooth up exactly as wanted when case is finished. Now you are ready to flask; this is done in the usual way, having the plaster come only to the edge of wax in first half of flask; trim nicely, smoothly; try the rim of flask on to see that it comes down tight all around; it must do this. Then rub the plaster with plumbago or paint with thin shellac. Then place second half of flask and pour, after putting plaster on the face of teeth, so as to get it between them and avoid air holes in the plaster. After plaster hardens, separate, wash and dry, having cut waste gates only in the back part of plaster; do not cut any in the front of plaster. Now you are ready to paint the plaster in second half of flask, representing face of gum, with a solution of chlora-rubber (the best solution I have found is Akron grey rubber, cut in chloroform, then allowed to settle, and pour off the clear solution). Having painted the face of plaster, representing the gum, and having Walker's gum facing warmed, place it exactly where you want it, first small pieces between the teeth, then one long piece of sufficient width to cover the whole face, pressing it down all around the teeth, and the solution of Akron grey will hold it exactly where it was placed, not allowing the red rubber to come through and show on the face of plate, and if you do not cut waste gates in front, it also helps to prevent the spreading of facing and so prevents streaked appearance so often seen with Walker's facing, which entirely spoils it. After the rubber is all in, heat the flask in dry heat, not too hot, but enough to admit of closing flask, which I do with a large screw clamp. By using dry heat you harden the cast as you soften the rubber. When you vulcanize, if you use a water bath, put but a small amount of water in and then raise the flask up from the water and vulcanize slowly. When done you have but to finish face with brush and felt wheels. If the few rules are followed you have used the minimum amount of facing and obtained the best possible results with the least work.

Lining Rubber Plates with Black Rubber.—Before packing, coat the cast three or four times with a solution of black rubber, allowing each to harden before applying the next.

Foreman (J. W.) on Band-Amalgam Crowns.—If Dr. Van Vleck, whose article on the above crowns appears in the April *Dental Cosmos*, will extend the use of them to all teeth needing crowns back of

the first bicuspid, he will be as well pleased with the results as he was in the case cited.

The first bicuspid, and in some cases the second superior bicuspid, should have porcelain-faced crowns. In all other posterior teeth I have been using the band-amalgam crown for ten years, and have yet to know of one coming off. There can be but two objections urged against them that I know of. The first is common to all collar crowns,—*i. e.*, the danger of setting up chronic inflammation and recession of the gum and process; the other is, that the worshipers of the “golden calf” may not think they are pretty. They may not be artistic, but they are accurate and durable; properly made, they are less irritating to the soft parts than any other band crown, because there is nothing but a close-fitting, smooth edge of gold, not platinum; no cement or any other rough and porous material; the articulation can be made *perfect*; and there is practically no possibility of their coming off.

Procedure.—Reduce crown to within about a line of gum margin; the sides to parallels as low as the free margin of the gum will permit. Measure accurately, by burnishing a strip of thin sheet tin around the stump. Measure the distance from the point where you wish the band to stop under the gum, to points of cusps of antagonizing teeth with the mouth closed, with a pair of caliper-tweezers (see page 113, Evan's “Crown- and Bridge-Work,” second edition) for length of band when soldered. Mark the distance between the points of caliper-tweezers, and also the *length* of the measure, on twenty-two carat gold plate. Cut the ends of the gold strip slanting, so that the top may be larger and the bottom smaller than the stump measurement when the band is soldered, that it may have a better shape and drive on tight. Shape the small end to correspond with festoons of gum, bevel and polish. Now bevel the stump freely from near the gum line, all around; spring the band over the end of the stump and drive to place; turn the edges, buccal and lingual, in, with How's curved pliers, supporting the opposite side with fingers; see that it does not interfere with occlusion anywhere—if it should interfere, grind off till free, supporting the band to prevent displacement; dry out and fill with amalgam from the bottom of the pulp-chamber to a little beyond the line of occlusion, packing the amalgam thoroughly with a thin instrument between the beveled edges of the stump and the band. Next day shape up grinding surface with disks and burs, and polish, burnishing the band-edge carefully under the gum.

Advantages.—The band goes on water-tight, and so produces the minimum of irritation; there is never any wearing through; the articulation is perfect; there is no coming off or loosening; it is accurate; you can see every step as you go along. None of which can be said of shell-crowns.—*Cosmos*.

Atkinson (Chas. B.) on Some Methods and Suggestions for using Pyrozone.—The manufacturers of pyrozone, in order to more clearly identify these efficient preparations of peroxide of hydrogen, have adopted the general name of pyrozone and designate their respective strengths by the percentage of peroxide of hydrogen which each contains, and one may be guided in their administration by this percentage value alone, as these pyrozones will be found to be uniformly true to their named values. The three per cent. solution of pyrozone is aqueous and so nearly neutral as to resist ordinary tests. Its range of use is as a mouth wash and gargle and as an irrigating and detergent wash in abscesses, sinuses and ulcerating surfaces.

Of the methods for the exhibition of pyrozone may be named for the three per cent.—in bulk 1 $\frac{3}{4}$ to 1 $\frac{3}{4}$ or more, as the extent of territory demands, followed by an equal bulk to twice the bulk of an alkaline solution, as soda bicarbonate $\frac{1}{2}$ $\frac{3}{4}$ to water 1 $\frac{3}{4}$ —also by injection per syringe, spray and inhaler, S. S. White's capillary dropper or Dunn's syringe, bearing in mind that all instrument surfaces in contact with the pyrozone must be of glass, hard rubber, platinum or gold.

About the necks of teeth and in pyorrhœa pockets the five per cent. may be dropped from an ordinary glass dropper, a drop at a time until sufficient effect is produced. An attenuated glass rod or even a tapered wooden probe may serve to carry a drop to place. In fistulæ of alveolar or other abscesses cotton or other tents may be placed to carry the pyrozone well within the tract and avoid the distension produced by violent injection from a syringe.

The range of use of both five per cent. and twenty-five per cent. is suggested as follows, the choice between the two strengths being made from a basis of depth or rapidity of action desired, or occasionally the five per cent. may displace the twenty-five per cent. when the mucous membrane proves unusually irritable, when the five per cent. will be much less painful than the twenty-five per cent.

Selection between these two strengths may also be made because the site may be minute or difficult of access, that is to say, where the pyrozone is to produce a deep influence through diseased tissue, or where the desire is to more rapidly clean a surface, or where the diseased site is small or more difficult to reach, the twenty-five per cent. will usually better serve than the five per cent.

The general use of these ethereal pyrozones is in abscess pockets, fistulæ or sinuses, fistulous roots, discolored teeth, pyorrhœa pockets, removal of discolored and other surface deposits, catarrhal congestion of the throat, nasal passages and more remote mucous tracts and cavities by injection, spray, tampon or swab. Ulcerations yield kindly to the spray

or swab. It is especially recommended to use a wash of bicarbonate of soda, $\frac{1}{2}$ 3 to 1 $\frac{3}{4}$, to thoroughly bathe all mucous surfaces that have been acted upon by pyrozone or other peroxide of hydrogen solutions, that no remaining surface acidity due to its activity may succeed.

In the use of the ethereal pyrozones the special pyrozone spray of McK. & R. (glass), the S. S. W. capillary dropper (glass and platinum tube), attached to a valved spray bulb, and Dunn's syringe (platina and glass) will be found efficient instruments. Small quantities of the ethereal pyrozone should be used at a time. The hand will heat the instrument at times sufficiently to volatilize the ether and result in emptying the full charge of the instrument, sometimes to one's chagrin.

Van Fossen (C. L.) on Removable Bridge or Plate Work.

—In the anterior teeth we utilize only the root, trimming down in the ordinary manner for setting a Richmond crown, with one exception, and this is the advisability of slanting the root from the labial to the lingual surface, to allow of as high a ledge in the rear as circumstances will permit, trimming the band on the labial surface to almost the gum margin. Next we solder a flat cap over the band and trim down the edges accurately. We next enlarge our pulp canal as large as possible to still retain sufficient strength, and turn our attention to the pin, which is made of either gold clasp metal or platinum and gold. Taking a heavy wire, bend about double, and inverting the loop end down, add twenty or twenty-two k. gold to the loop by melting till we have quite a ball or knob as large as the top of our root will admit, trimming this pin up to loosely fit the root. We next make a tube of No. 30 platinum to fit the pin accurately, soldering the tube with pure gold. Puncturing the cap of one root protection, we drive the pin and pin covering through as far into the root as possible. We will have a little surplus of the platinum sheath or tube, which we split in several places and burnish down to the cap. Next carefully removing the pin to not displace the tube, we remove the root protection with the tube, and invest upside down, being careful to fill the tube with the investment, and thereby keep the solder out, heating up the investment solder altogether. We now proceed to make a Richmond crown for the platinum covering of the root, being careful not to let the band impinge on the gum, as its removal and subsequent replacement a number of times daily would start up a serious gum irritation. We do not consider the pin at all in making the crown, but make it pinless, and when the whole piece is complete trim the top of the pin to a round center, and thread in your screw plate, and place in the root tube, drop a piece of wax in the center of the crown, press to place. This will mark the position of the pin and allow you to take a drill the size of the screw, and drill a hole in the crown, and then thread the hole

same as the pin. We can now screw our pin in and rivet at the top, and any subsequent repairs made with very little inconvenience.

In the posterior attachment we allow the inner band of platinum to extend nearly as high as the natural tooth was, leaving only sufficient space between the band and articulating teeth to allow of a quite heavy solid gold cap, capping the band in the usual manner, *flat*. Make the pin as heavy as possible and cover with the tube as described for the the anterior crowns.

With the exception that we make the ball at the top much heavier and the pins separated much more, and make a partition wall in our tube to fit between the two prongs of the pin, proceed to connect the tube and root covering as described, and, after polishing, set with cement to place. I neglected to state that this tooth covering should always be made smaller at the top than at the gum margin.

We next make a telescope crown of twenty or twenty-two k. gold to fit this inner platinum sheaf, trimming off flat at the top, and next mold a solid gold cap to make a thorough articulation with the corresponding teeth.

A very nice method of obtaining a perfect articulation being to pound a bullet into your die-plate on the tooth you desire, file flat and lay on top the cap, and allow the patient to close the jaws firmly. The opposite teeth will press into the lead easily, and allow you to trim down with a knife.

When perfect, drop a little sticky wax on a round stick and place the lead on it, and proceed to mold your cap in the cuttle-fish bone as usual. By this method you have no grinding of the cap after finished.

Soldering the cap now to the telescope band, we have our anchor complete, with the exception of the pin in the cap, which we screw and rivet to place.

We are now ready to consider the attachment of the intervening or bridge teeth. Here we are allowed a variety of methods. The only stipulation I would make is that the gum should be saddled to allow it to assist in standing the strain.

We can swage a rim of gold to fit the gum quickly by taking a plaster impression and drying out; flow in fusible metal and proceed to burnish the rim to place, which can readily be done by annealing a few times. Soldering the saddle to the two anchors, and a few cleats on the saddle, proceed to vulcanize the teeth to the saddle in the ordinary manner of attaching to a gold plate.

Again, in the lower jaw, we may make a very inexpensive case by attaching the dummies together with Watts metal, and soft solder this to the two anchors.

Again, by simply soldering a strong bar of gold or platinum between the two anchors, vulcanize the teeth between.

If you want more elaborate and extensive work, swage your rim, back your teeth and solder to the saddle, rim the labial surface, and you have a whole gold case.

The advantages I claim for this class of work over stationary bridge-work, are:

1st. Absolute cleanliness, as the patient can remove and cleanse at will.

2d. A more natural appearance of the work, as by the use of rubber or celluloid for attachment we can use teeth without the heavy gold coverings, as a breakage does not necessitate much work in repairing.

3d. More extensive work, as the teeth used as anchors do not have to stand the blunt of the forces of mastication.

4th. Extension bridges, as the gum will stand the strain.

5th. Allowing us to more easily reproduce nature on utilizing gum-blocks where, by the ravages of disease or marked shrinkage of the alveola, such are indicated.

6th. A more natural feeling in the mouth, as no spaces need be left to insure cleanliness.—*Extract Items.*

Bogue (E. A.) on Some Useful Devices.—I want to show here a device I have had made for holding a little mirror, which is to be used as a mouth-mirror, or for the purpose of reflecting light into an obscure cavity. It is attached to a pedestal which is to stand on the operating tray, and has a projecting arm about seventeen inches long. In height it is adjustable, and can be made to vary from five to nine inches.

It has also a hinge-joint, which makes it still more adjustable. Inside of the projecting rod or arm, which is hollow, runs a smaller rod, to which is attached a ratchet, which tightens or loosens the ball-and-socket joint at the other end. To this ball the mirror is attached. The movement of the glass is very free, and it can be placed at any angle and securely held there by clamping with the ratchet. By this device the cavity may be seen by looking into the mirror, or light can be reflected to any given point, and yet both hands can be free.

The liberation of the left hand is a great point gained. This gives the opportunity for the use of instruments for holding the dam above the cervical edge of cavities, and for the holding of matrices and rubber-dam depressors, and for holding in place the first pieces of gold in filling.

I have also here a distinct set of right and left matrices made from very thin steel. On one end is soldered a little lug which is designed to hold the matrix close by resting against the adjoining tooth. To the other end is soldered the point of an old excavator, which serves as a

handle, and which enables one to control the matrix. By means of this handle the matrix can be quickly applied, and by pulling on it the lug forces it close to the tooth on the inside, while on the outside it can be held close to the tooth or turned away to give better access to the cavity. For the placing of plastic fillings these hand matrices, as I think they should be called, are invaluable. Nothing I have devised in a long time has given me as much satisfaction as these have done. Of course, their use is made more available by means of the mirror-holder.

I wish to show some instruments which have several uses, the principal one being that of depressors, for holding the rubber dam below the margins of the buccal and labial cavities. They are also designed for reflecting light into the cavities to be filled. Also for collecting the gold filings from the surfaces of the rubber dam. They are made by swaging disks of steel into the form of concave cups and soldering handles onto them, so that they are not unlike the ordinary mouth-mirrors. When highly polished and nickel-plated they are powerful reflectors of light, the focus, of course, depending on the concavity. They are of different sizes, the smallest being three-eighths and the largest one-half of an inch in diameter. They are made in three sizes; one of each size is used in the form described,—simply a round, rather deeply concave disk, and so highly polished as to almost answer as a mirror. But others are filed out in scallops of different sizes and angles, and these scallops fit these and the gums.

From this handful is easy to select one with a scallop that will fit any tooth, however large or small, and the festoon of almost any gum. Here, then, are instruments with which the dam can be pushed back and held back in such a manner as to disclose a cavity on any but an approximal surface. If the dam is not used then the gum can be pushed back in the same manner, and so efficient are they for this purpose that sometimes the dam need not be used at all. And while doing all this they reflect the light in such a manner that the cavity becomes luminous. Still another advantage arises from the fact that the concavity of the instrument gives the room which is needed for the instrument to work in.

Two months ago there was some talk before this Society about the cleansing and filling of roots, and if it was not said outright, it was inferred that it is not always impossible to actually get into the buccal roots of superior and the anterior roots of lower molars, so as to clean them carefully and fill them accurately. We know that this is true; still, I believe they can be more thoroughly cleansed and more perfectly filled than they generally are.

Beyond the enlargement of the orifices of the roots, which I accomplish with the reamer I exhibited two or three years ago, I do not believe

in reaming out the canals of roots, because many are curved and some are flat, and there is too much danger of going through the sides. The instruments I use for getting into these small canals, which are left in their natural condition, are the small broaches used by jewelers. I buy them in quantity, and draw the temper from them to suit myself. They are four-sided, and a few fibers of silk or cotton can be rolled or twisted onto them so firmly that they are not easily pulled off. (I use the raw silk because of its very long and tenacious fibre.) By twisting this instrument on which the silk has been rolled in the root the silk fibres become entangled in the pulp, and very often it can be removed whole.

I use these smooth instruments in this manner for the most part in preference to barbed ones because they rarely break, because they are efficient, and because they can be passed into a smaller canal than any instrument that has been barbed or bent into a hook at the end. Of course, to barb an instrument, or bend a hook on it, is to increase its diameter so that it will not enter these small canals, and every cut made in barbing the instrument increases the danger of its breaking. If the instrument does not break, the barbs are liable to break off and be left in the canal. A very few fibres of silk, lightly wound, do not increase the diameter of the instrument very much, and they hold and convey the carbolic acid I use if the pulp is not quite dead, and if they do not take the whole of it out, they entangle and take out pieces of it. In this way, cauterizing as you go, the whole of these delicate pulps can be, by a little time and patience and very little pain, entirely removed. The silk, which at first comes away loaded with pieces of pulp and blood blackened by the carbolic acid, will after a time come out white and clean. It may then be very difficult, and perhaps impossible, to really fill such small canals with anything absolutely accurately; but if any of the mummifying fluids are used, carrying them to the apex with this instrument and the silk, I am not so very sure that it is necessary. Of course, I endeavor to fill them (and for this I use oxychloride, putting in the the fluid alone at first, or chloro-percha, using the chloroform first, carrying them to the apex with the silk-wound instrument and then plunging into the canal a gold wire about the size of the broaches), but I am not always certain that the confined air does not act as a cushion and prevent making a perfect filling. I aim to be more certain of getting the pulp all out than to get the canal perfectly filled. Of course, I am talking of very small canals,—so small that the smallest broach we can get will only allow a few fibres of the silk to be used; and we must remember that such small canals at the apex are almost hair-like, and if well mummified by fluids which can be pumped into them, I do not fear them even if they are not absolutely filled.—*Extract International Journal.*

CORRESPONDENCE.

INTERESTING NOTES FROM CHICAGO.

DR. C. F. SNYDER, of Berlin, has brought home with him a fine original portrait of Benjamin Franklin, which he has placed on exhibition at the Art Institute on the lake front.

The Columbia Dental Club is making extensive preparations for the entertainment of guests during the congress. One night has already been set apart as a special night when members turn out in greater force than usual.

The Chicago Dental Society, at its last meeting, appointed a committee to make preparations for a reception to be given to those members of the profession who would be in the city in advance of the meeting of the congress. Other societies of the city have adjourned for the summer, without making any special preparation for the entertainment of visiting dentists, but the members individually are preparing to see that nothing is lacking so far as hospitableness is concerned.

At the last meeting of the Chicago Dental Club held, the subject of "What system shall we adopt for the collecting of bad accounts," was presented. The state of the business department of some dental offices, as represented by the essayist, was rather appalling to some of those who listened to the paper. It was evident from the discussion, as well as from the paper, that among the clientele of some of our Chicago dentists there was a sufficient number of dead-beats to make life interesting. The methods pursued by some of these dead-beats in gaining the services of dentists, without remunerating them, were recited by those taking part in the discussion. Each one seemed to have had some experience peculiar to himself. A representative of R. G. Dun & Co. was present and gave some of the methods adopted by the retailing merchants of the city, who have organized themselves into a protective association, the principal object of which is to maintain a black list. Persons whose names are found in the list are then refused goods by the members of the association until their names have been removed from the list. Some such organization was suggested for the dentists. Another

suggestion was made that this matter of collecting fees for services against dead-beats lay in the province of our local societies, and that such a black list might be maintained by the secretaries of these societies, which could be altered at each meeting, and to which the members might have access at any time. Such a society could afford to pay its secretary a good salary for his additional labor, and still pay its members large dividends through the collection of bad debts.

Not only are the societies of the city active in their efforts to make a good showing from now on, but the colleges are actively at work. In addition to their regular practitioner's courses, two of the faculties are building new buildings for the accommodation of their students during the coming winter. The Chicago College of Dental Surgery already has the corner-stone of its new building laid at the corner of Wood and Harrison Sts. The exercises of laying the corner-stone were held Monday afternoon, June 12th. The usual ceremonies were observed, Dr. Brophy laying the stone, Dr. Harlan delivering the address, and Dr. Gardiner, the business manager, making his report of the condition of the college, and giving its history from its inception.

The Northwestern Dental School will have extensive quarters in connection with the Chicago Medical College (both departments of the Northwestern University, at Evanston), in a new building at the corner of 24th and Dearborn Sts. The plans have been accepted and the building will be one entirely modern in all its appointments. All the latest and best appliances will be placed in the building, and every means adopted to make the instruction of students thoroughly scientific. Chicago, at this rate, will soon become the scientific dental centre of the country, that is, if it has not already become so.

On June 15th the faculty of the Northwestern Dental School, attended in a body the reception given by President Rogers to the faculties and graduating classes of the Northwestern University, at Evanston.

The display of electrical machinery, for dentists, at the World's Fair, is reported to be very complete, several firms having exhibits in that line.

ANON.

RESOLUTIONS ADOPTED BY THE CHICAGO DENTAL SOCIETY ON THE DEATH OF DR. W. W. ALLPORT.

WHEREAS, In the death of Dr. W. W. Allport, a leader in our profession has fallen, and as a mark of our appreciation of his services and skill, be it

Resolved, That in his death the dental profession has lost a member whose extraordinary skill as an operator placed him among the foremost dentists of the world. His work in promoting the highest interests of the profession will ever be conspicuous, and the prosperity enjoyed by younger members is due in a great measure to his achievements.

Resolved, That a copy of this preamble and resolution be sent in proper form to the family of the deceased, and also to the dental journals for publication.

TRUMAN W. BROPHY,	} Committee.
A. W. HARLAN,	
J. N. CROUSE,	

AMERICAN DENTAL DIPLOMAS NO LONGER RECOGNIZED IN GREAT BRITAIN.

ON Nov. 21, 1892, the Executive Committee of the General Medical Council of Great Britain, received and considered the following communication :

FROM THE BRITISH DENTAL ASSOCIATION.

(a) "*Memorial as to the Recognition of American Dental Diplomas in the United Kingdom.*"

"We, the undersigned Licentiates of Dental Surgery of the Royal College of Surgeons, desire, respectfully, to call the attention of the Medical Council to the following facts :

"After the passing of the *Dentists' Act* in 1878, and the settlement of the Dental Curriculum of the United Kingdom by the Medical Council, the question of the recognition of foreign diplomas for registration was raised.

"It was then, on examination, found that no foreign dental diploma testified so complete and so lengthened an education as the United Kingdom qualification. But it was, we believe,

considered desirable on the ground of professional amenity to recognize, 'for the time being,' the Harvard and Michigan qualification, as those, though falling short, made the nearest approach to our own standard, thus waiving, for a time, equality of qualification as between United Kingdom and foreign qualifications in favor of the applicant for registration.

"The great advances which have been made from time to time in our educational standard have rendered the inequality still more marked.

"The preliminary examination demanded by these colleges is, as may be seen from their own prospectuses, of such a nature as to fall far below the standard required from the dental students of this country, and, further, these examinations are in some instances committed to the care of individuals who have no kind of responsibility nor any claim to be considered competent for such an office.

"On these grounds we beg, respectfully, to suggest that the Medical Council, by virtue of the power invested in it by Clause 10 of the *Dentists' Act*, withdraw, for the time being, the right of registration which has hitherto been accorded to the American Colleges.

"To the General Medical Council."

The following signatures were appended to this memorial:—John Tomes, J. S. Turner, Morton Smale, S. J. Hutchinson, W. B. Paterson, Ashley Gibbings, William Hern, Frederick Canton, Arthur S. Underwood, Joseph Walker, F. Newland Pedley, Francis Ewbank, John Ackery, J. Howard Mummery, Sidney Spokes, Charles S. Tomes, Storer Bennett.

(b) *Remarks on the English and American Dental Diplomas.*

"The most obvious difference between the American and English dental diplomas may be best observed in studying the methods of examination pursued in each case.

"It is commonly said in America amongst those dentists who are interested in education, that, owing to independent States being able to make their own laws, and owing to the ease with which schools and colleges can be established, the competition is in a downward direction, and that schools which have tried to take a higher standard have suffered by a diminution in the number of students."

Here is appended a column showing the subjects in the preliminary examination required from intending dental students in the American universities recognized by the English Medical Council, and also that required by the Royal College of Surgeons of England.

After some remarks on these preliminary requirements the report continues regarding the American Dental curriculum:—

“The American curriculum is certainly both extensive and particular, and may seem superior to the English one at the first glance owing to the amount of detail that is given. These details, however, seem to point more to the limitation rather than to the extension of what is taught; as, for instance, a course of six lectures on Neurology is specified, and then it is added: ‘The anatomy of the trifacial nerve being made the subject of special study.’

“The time which is allowed for the multiplicity of subjects is three years; but a case recently before the Medical Council points to the conclusion that there is an amount of elasticity in the computation of years which enables this to be modified; for a candidate for registration had accomplished the work in such a way as to receive his degree of Doctor in a period of twenty-five months; and from all one hears, this is not a solitary instance. “It would be a long and more or less fruitless task to analyze one of these curricula; but if the number of subjects named can be taught in three years, then the American student and the American teacher must each be superior in method and in perceptive power to those in England. To those who do not think that this superiority exists, it seems that there is a great promise of teaching, but very small possibility of education.

“Although want of practical experience precludes a direct comparison between the curricula of the two American Universities in question and that of England, there are certain side-lights which may lead us to estimate, in some degree, their relative value.

“As against the three years American time, the English curriculum demands four years, and in many instances, where the pupil resides at a distance from an educational centre, the time virtually amounts to five years. Then there is the difference in the amount of fees charged in the American course and in the English one.

"At the Michigan School the fees are £37.14s, and this includes fees for parts for dissection and the Diploma fee, and all such expenses. The fees for parts are estimated at two guineas (£2.2s).

"At Harvard the inclusive fees are £87.10c. In this amount is included all matriculation, diploma, and demonstrator's fees; but a deposit of three guineas (£2 3s.) is required to cover laboratory breakages, and also a deposit of one pound five shillings (£1 5s.) for parts of dissection, the unused balance to be returned. The items to cover dissection show either a very low rate for parts, or a very small amount of dissection.

"In England the dissections are defrayed by the student as he goes along, and are kept as one of the records of his work in some schools; beyond this the fees, and diploma fee, amount to £122. The expenses are thus shown to be much heavier here than in America.

"The professional examination in England is open to fellows of the college and all teachers, and is conducted by a body of examiners who are not engaged in teaching. In America the certificates which procure the degree of Doctor are granted by the teaching staff of the school, or the 'Faculty.'

"This constitutes a very marked contrast between the two systems.

"The requirements of the Medical Council from the dental student are in every way as strict as they are from the general student of medicine; but the *Dental Register* admits foreign diplomas from two universities as qualifications for registration, while no such privilege is awarded to any foreign diploma by the *Medical Register*.

"In the future the dental curriculum is not likely to be made less exacting; indeed, the tendency is in the opposite direction, and it may now be taken as certain that the preliminary examination will be very much extended, and in this extension the dental student will have to participate, so that the discrepancy between the American and English dental student will become greater than ever; and while this obviously unfair condition exists it will be impossible for those interested in dental education to make that advance which they so much desire."

Here follows a communication from the Baltimore College of Dental Surgery, asking recognition the same as Harvard and Michigan.

In regard to the foregoing communications the Executive Committee passed the following resolution :

"*Resolved*, That these communications be referred to the Education Committee for consideration, and that they be requested to report to the next session of the General Council."

On reference to the report by the Executive Committee on qualifications for registration under the *Dentists' Act* (1878) (Minutes, Vol. XVI, pp. 148-198), it will be found that "the (Executive) Committee were of the opinion that the certificates of the degree of Doctor of Dental Medicine granted by Harvard University, and of the degree of Doctor of Dental Surgery granted by the University of Michigan, may be recognized by the Council, under Clause 10 of the *Dentists' Act*." The grounds for this recommendation are as follows:—"In each of these institutions the candidate for the degree is required to have devoted three years to professional study, and to have attended lectures and courses of instruction at a dental college during two years. The examinations, which are written and practical, including actual operations and the preparation of specimens of mechanical dentistry, appear to furnish sufficient guarantees of the possession of the requisite knowledge and skill for the efficient practice of dentistry or dental surgery." At this period no preliminary examination was demanded at Harvard.

The common requirements of the four British and Irish licensing bodies at that time (1879) were, as stated by the Executive Committee:—"In each instance the candidate is required to be twenty-one years of age, to have passed one of the preliminary examinations recognized by the Medical Council in the case of medical students, to have been engaged four years in the acquirement of professional knowledge, to have been engaged three years in the acquirement of practical knowledge under a registered practitioner, and to produce evidence as to moral character." Beyond these conditions, attendance on courses of Anatomy, Physiology, Surgery, Medicine, Chemistry and *Materia Medica* was obligatory ; the length of time for the study of each subject varying in the requirements of the different bodies.

Communications have on various occasions been received from American universities and colleges, begging that their licences in Dental Surgery should be recognized by the Council (Minutes, Vol. XVI, p. 438; Vol. XXVIII, pp. 214-216). These communi-

cations showed that the requirements of the petitioners had been raised to the standard of the two American colleges recognized by the Council. In every case, however, the petition was refused on the ground that preliminary examinations were not enjoined, and that the course of professional instruction extended over three years only.

There is reason to believe that certain of the American bodies have brought themselves up to the standard of Michigan and Harvard, and that their teaching appliances are satisfactory. From personal observation the Committee have been assured of the excellence of the teaching arrangements in such centers as Baltimore and Philadelphia. It appears, therefore, to the Committee that injustice is done to the American bodies whose curriculum is, to say the least, equal to those of Harvard and Michigan, by the grant of special recognition to the two last-named colleges alone.

It appears, however, to the Committee, that a greater injustice is done to the Licentiates of the British bodies, by placing them on the same level as the Diplomates of the two recognized American colleges whose curricula are manifestly inferior to those enjoined in this country. The Council can assure itself of the character of the teaching and examination of the home licensing bodies; and, being possessed, by Sec. 22 of the Dentists' Act, of full power of visitation and inspection, can exercise discipline in order to maintain or raise the standard. The Council has no such power over foreign colleges. So far as the interests of the public are concerned, the question involved is not at present of great importance; for on reference to the "Table showing the numbers and qualifications, with percentage of the total, of persons registered in the *Dentists' Register* for 1892," it will be found that the names of only 19 foreign dentists appear (7 from Harvard and 12 from Michigan), forming 0.38 per cent. of all the registered dental practitioners. (*Dentists' Register*, 1892, table on p. 23.)

APPENDIX TO REPORT.

The following communication in regard to the dental degrees of the Universities of Harvard and Michigan have been referred to the Education Committee by the Executive Committee:

(a) *Letter presented by Mr. Charles Tomes, containing Resolutions passed by London and Counties Medical Protection Society.*

"13 Royal Avenue, Sloane Square,
LONDON, S. W., March 10, 1893.

Dear Sir:—I beg to inform you that at a meeting of the Council of the London and Counties Medical Protection Society, on February 28th last, it was unanimously *resolved*—

- (1) That, from the facts which have come to the knowledge of the council of this society, it is of opinion that any recognition by the General Medical Council of the diplomas of Harvard and Michigan leads to serious injustice, and tends to lower the status of the dental profession in England.
- (2) That Mr. Tomes be requested to bring the above resolution to the notice of the General Medical Council.

I am, dear sir, yours faithfully,

HUGH WOODS,

Hon. Sec. L. & C. Med. Prot. Soc.

C. S. Tomes, Esq., F.R.S."

(b) *Letter from Mr. Morton Smale.*

"22A Cavendish Square, W., May 18, 1893.

Dear Sir:—I should like to call your attention, and through you that of the General Medical Council, to the complaint of Mr. Hill, that a German fellow-student who passed the dental examination at Harvard at the same time with himself has been allowed a place on the *Dentists' Register*, while (Hill) has been refused registration.

When the two American colleges were admitted to our home *Register*, it was certainly never contemplated that they were to be able to send us foreigners of any or all nationalities. Yet in so doing they are acting within the rights conceded to them.

According to this, the two American colleges, having access to our *Register*, have the whole population of the world as their possible students, and, with their diplomas, are eligible for our home *Register*.

Excepting always natives of Great Britain, therefore, these two American Colleges, with a shorter and inferior curriculum, and inferior examination, are very likely to send more foreign applicants for registration than are likely to come from our home schools.

We consider this is an additional reason for granting the concession which has been applied for, regarding the registration of all foreign dental diplomas.

W. J. C. Miller, Esq.

Yours most truly,

MORTON SMALE."

"No. 4808.

General Medical Council Office,

299 Oxford Street,

LONDON, W., May 31, 1893.

Sir:—By order of the General Medical Council, I send you herewith a copy of a report presented to the council by its Education Committee, whereon the council, at its meeting on the 29th inst., passed the following resolution :

That the recognition of the certificates of the degrees of Doctor of Dental Medicine of the University of Harvard, and Doctor of Dental Surgery of the University of Michigan, by the General Council be suspended until further notice, and that the Registrar be instructed to refuse registration of such certificates.

I am, sir, yours faithfully,

W. J. C. MILLER, Registrar.

*To the Secretary of the Dental Department)
of the University of Michigan.")*

EDITOR'S NOTES.

ATTEND THE COLUMBIAN DENTAL CONGRESS.

WE hope that every one of our readers will arrange to attend the Dental Congress at Chicago Aug. 14-19, 1893. From the information pertaining to it that has been printed from time to time in this and other journals, it will be readily seen that every effort has been made to insure its success. An abundance of material, in way of papers to be presented, is assured, and the best men throughout the world will be in attendance. Exhibits pertaining to dentistry will be interesting and instructive. As announced in a previous issue, the Columbian Dental Club House, 300 Michigan Ave., has been specially prepared for the entertainment of visiting dentists. The Congress, as a whole, promises

to be the greatest dental event ever known, and probably many years will elapse before its equal will again occur. If you can visit the Exposition but once, by all means go the week of the Congress. American dentists should feel duty bound to attend. Your attendance alone will assist in making it a grand success. Do not fail to go.

INTER STATE DENTAL EXAMINING BOARD.

At the recent meeting of the Mississippi State Dental Society, Dr. W. E. Walker, of Bay St. Louis, President of the Board of Dental Examiners, said that "during the present meeting of the board many things had forced the conclusion upon his mind that something is imperatively needed to bring about a greater degree of harmony between the different State Boards, and between the Boards and colleges. What is needed would seem to be an Inter-State Dental Examining Board, supplemental and different in function from the National Board of Dental Examiners. He said that he had not had time or opportunity to mature a plan; the scope of such a board should be broad and liberal and he would offer as suggestions only, that this board should properly be composed of one delegate from each State Examining Board that might endorse this plan. A license granted by the Inter-State Board should qualify a man to practice in any State of the Union represented on this board, without undergoing another examination.

The function of this board would be to examine all applicants for an Inter-State license, both in "learning" and "skill;" the standard not to fall below that required for graduation by the colleges having the severest requirements, and with the exception of holders of State licenses, none but graduates should be allowed to appear before the Inter-State Board.

A provision might be included which would entitle our best "old men" to an Inter-State license without examination, provided they have held a State license for a period of at least five years and properly endorsed recommendations from their State Society and from the existing State Board in lieu of five years' State license, in case such State has not had a State law or State Board for five years at the time of their application. If such a plan could be perfected and put into execution a man could go

before such a board while in his prime, and if he passes the examination, which should always be fully up to the then implied standard of professional attainment, he would receive a license which would entitle him to a State license in any of the States represented on the Inter-State Board, on satisfying the demands of the State law by a formal examination and payment of the legal fee."

Dr. Walker illustrated various cases in which ample justice would thus be rendered on all sides and existing discords harmonized.

This idea of Dr. Walker's seems a plausible one, and we hope to see further developments in this direction. For many reasons an Inter-State license would be desirable, and we cannot see why capable men should not have an opportunity of possessing one.

If we are a liberal profession we should have an equality of standard and do away with the present objectionable features in the laws of certain States, viz: requiring an examination of qualified graduates before granting a certificate to practice within their boundaries.

AMERICAN DIPLOMAS NOT RECOGNIZED.

ON another page in this issue we present the important portions of a communication sent to the University of Michigan Dental Department, pertaining to the action of the General Medical Council of Great Britain, to suspend the recognition of Michigan and Harvard diplomas. The cause for this action is stated to be inferior requirements in studies, teaching and length of term, etc. Whether this is the only cause or not it matters but little; only 19 took advantage of the registering privilege during the past year, which shows that but a small per cent. of the graduates here are anxious to practice in England in preference to the United States, and it would probably be found that the majority of those registered were foreigners who came here to be educated. The Council, however, cannot be censured for not recognizing diplomas from certain schools here, and especially as long as individual states of our own country enact laws recognizing no American diplomas but those granted by their own state institutions. The American schools, however, will become no less lax in their requirements on account of this action, but, we may state, will continue to graduate dentists equal to any.

NEW PUBLICATIONS.

ORTHODONTIA, OR MALPOSITION OF THE HUMAN TEETH; ITS PREVENTION AND REMEDY—By S. H. Guilford, A.M., D.D.S., Ph.D., Professor of Operative and Prosthetic Dentistry in the Philadelphia Dental College, etc. Second edition, revised and enlarged. Published by the author at Philadelphia, Pa.

This work of Dr. Guilford's has been approved by the National Association of Dental Faculties as a text-book for use in the colleges. It contains an accurate description of all the various appliances needed in the correction of irregularities of the teeth, their application and use, and also general information pertaining to the whole subject of orthodontia. This second edition has been brought up to the present state of knowledge in this specialty, which has involved the labor of rewriting nearly the whole book. More than forty pages have been added to the text and fifty new illustrations incorporated. The addition of new chapters on "The Construction of Appliances" and "Electro-Plating" add to the value of the work.

LETTERS FROM A MOTHER TO A MOTHER ON THE FORMATION, GROWTH AND CARE OF CHILDREN'S TEETH—By Mrs. "M.W.J." Fourth edition. Wilmington Dental Man'f. Co., Publishers. Price, 25c per copy.

This little book of 114 pages is filled with valuable suggestions on the care of children's teeth, and should be in the hands of every mother. It is the best work on this subject ever published and it seems to us a duty every dentist owes his patients, to supply them with these books (at cost if desired), when circumstances indicate their use. If you have not seen the book by all means send for it, if for nothing else than to have it on the table in your reception room.

FORMULAIRE PRATIQUE POUR LES MALADIES DE LA BOUCHE ET DES DENTS—By G. Viau, Paris. Price 5 fr.

This work of 400 pages is a practical formulary of diseases of the mouth and teeth, a memorandum clinical and therapeutic, followed by an operative manual of anæsthesia by cocain in

dental surgery. Many diseases of the mouth and teeth of interest to the dentist are described and treatment suggested. Particular mention is made of the chapter on anæsthesia by cocain. The practitioner will find in this the History and Pharmacology of Cocain, Physiological Action of Cocain, Intoxication by Cocain, the Mode of Employing Cocain, the Treatment of Accidents, Local Anæsthesia by means of Tropa-Cocain. The matter is well condensed and the book is valuable as a work of reference.

BRIEFS.

— SODIUM Fluoride the more it is used as a sterilizer, the more satisfactory it becomes. A saturated solution for instruments and broaches.—*Dental Review*.

— To rid gold of alloy 1 oz. of silver should be mixed with 1 oz. of gold, and the molten mass poured into a quantity of water to granulate. The gold is then acted upon with strong nitric acid until all silver and other alloys are eaten.

— IN a great many narrow bridges, where you want a very little plate, but still a very stiff appliance, a large flow of solder over a platinum and iridium wire, finished round or half-round, makes a very stiff and rigid plate.—*Dr. Moffatt*.

— RUBBER can be dissolved more readily by adding from five to fifteen per cent. of oil eucalyptus to the benzol of carbon bisulphide used; in the latter proportions the mixture of carbon bisulphide will dissolve nearly twenty per cent. of rubber.—*Brit. Jour.*

— THE following is recommended as a deodorizer for iodoform :

R Iodoform,	-	-	-	-	-	gms. 187
($\frac{3}{4}$ vj.)						
Carbolic acid,	-	-	-	-	-	gms. 1
(gtts. xv.)						
Oil of peppermint,	-	-	-	-	-	gms. 2
(gtts. xxx.)						

— I have changed my mind in the last few years in regard to immediate root-filling. In every case I let the constitutional condition of the patient, the temperament of the patient, and

what I know of his habitat and surroundings, guide me a great deal, as well as all the history of the case that I can gather, and I think such considerations ought to govern all of us.—*J. D. Patterson.*

— As a matrix for cement fillings there is nothing like celluloid. It is the only thing that is fit for a matrix when you are using phosphate of zinc. You can fill one side, or put the matrix in between and throw the cement in on both sides; let the cement harden with that matrix in there, then slip it out and you have got a perfectly polished surface; it is just as smooth as glass.—*Dr. Schulze.*

— A continuous circulating battery has lately been brought out by M. Serrin. It is a simple sulphate of copper battery with zinc and carbon electrodes, but with a syphon arrangement for keeping up a continuous circulation. Two vessels, from and to which the liquid flows, are reversed every morning. The battery has a low internal resistance, and is said to be constant and economical—*Invention.*

— DR. G. C. ANTHONY'S method of capping pulps is to "dissolve sufficient gutta percha in chloroform to half fill an ounce bottle. Add oil of cloves, 20 minims; tannin, 10 grains; carbolic acid, 20 minims. Seal and shake till satisfied of a perfect mixture; then open and allow the chloroform to partially evaporate. There will remain a putty-like mass, which is always ready for application."

— IN preparing a root for a porcelain-faced crown I have been much pleased in the use of a little instrument devised by Dr. Taggart, and that is an ordinary fissure bur with a round shoulder soldered just far enough down to give required width of gold band. This is for the purpose of cutting through the alveolus on the proximal sides of the root, thus permitting the band, when made, to extend further up under the free margin of the gum, and when the crown is completed no gold whatever is in sight.—*A. W. McCandless.*

— AN excellent device for holding the sandpaper when smoothing off the rubber plate is a piece of rubber-tubing about an inch and a half long and three-eighths of an inch thick, the sandpaper rolled around the tubing. The rubber holds the sandpaper with just sufficient firmness, and allows the paper to fit and accommodate itself to the contour and depressions, or, to use a mining

phrase, dips, spurs and angles to a nicety.—*L. A. Teague, Pac. Coast Dent.*

— THE manner of producing the rugæ on the surface of an artificial denture is as follows: First take off the wax from the flaked case, then draw lines on the part of the investment which is to be at the lingual aspect of the roof of the mouth when the cover and the receiver of the flask fit together, and engrave the lines with a suitable knife, then fill in the rubber and vulcanize. Thus we can get the projections as we desire.—*Ichigoro Nakahara, (Japan), Cosmos.*

— A solder for aluminum is made as follows:

Tin, 80 parts;

Zinc, 20 parts.

To be used with a flux composed of—

Ssearic acid, 80 parts;

Zinc chlorid, 10 parts;

Tin chlorid, 10 parts.

—*Engineering and Mining Jour.*

— FOR tired heels Dr. Spence has found great help from the simple operation of placing inside the shoe, and below the wearer's heel, a cushion formed of soft and thin leather, made into a pocket and stuffed with hair. The natural springiness of hair prevents this pad from ever flattening down very hard, and thus avoids the occlusion of the ball of the heel with those prominences of the leather after found in this location. By means of this, the irritating discomfort of tired heels can be largely banished for the dental profession.

EXAMINING BOARD NEWS.

ERRATA:—The name E. Eugene Stroud, Sandusky, as published in the official list of registered dentists, should read C. Eugene Stroud; C. Peck, Sandusky, add middle initial D.; H. Chandler, Sandusky, add middle initial A. On page 362, top of page, place *Steubenville*—continued above names of F. S. Maxwell and others.*

* In some unaccountable manner pp. 360-1 were numbered wrong; should have been 356-7. Any dentists who may note errors of any kind in the *Official List* as published, will confer a favor by notifying the Secretary. We wish to issue within the next thirty days in pamphlet a revised and corrected list, etc.

Since sending the last list for publication, the following dentists have made application, and have been registered by the board:—W. R. Moffet, McComb, Hancock Co.; J. L. Mahan, Bristolville, Trumbull Co.; T. S. Hudson, Cleveland, Cuyahoga Co.; Henry C. Miller, Cincinnati, Hamilton Co.—GRANT MITCHELL, *Sec'y*.

SOCIETIES.

LODGINGS SECURED.

DEAR DOCTOR BETHEL:—With a view to reducing to a minimum the trouble of securing suitable lodgings upon arrival in our city, I have carefully arranged for the benefit of dentists who desire to avail themselves of the offices of this bureau, a very comprehensive list of hotels and rooming houses known by me to be worthy of recommendation and most desirably located, and including rooms, at the various rates from \$1.00 per day upward, which list will be kept subject to inspection at my office in the club house at all times, and in connection with which my service in assisting in the making of selections and locating is hereby tendered. Should any desire assignments made in advance of arrival, I will make them, using my best efforts to subserve the interests of and please applicants. To accomplish this I would simply require names, number of rooms and beds required, date of arrival and rate which it is expected to pay. I am happy to assure the profession that the congress in point of attendance will be a success. In fact, but little extra effort is needed to make it not only the greatest gathering of dentists the world has ever known, but the most successful of the many great World's Fair congresses.

Very truly,

R. C. BROPHY,
300 Michigan Ave., Chicago.

♦

AMERICAN ASSOCIATION MEETINGS.

THE place of holding the next meeting of the National Association of Dental Faculties, the American Dental Association and the Association of Dental Examiners, will be in Kindergarten

College Hall, 10 Van Buren St., Chicago. This change was made too late for insertion in July journals.

INDIANA STATE DENTAL SOCIETY.

THE 35th annual meeting was held at Indianapolis, Ind., June 27 and 28. The following officers were elected for the ensuing year:—President, W. M. Hindman, Vincennes; Vice-President, W. W. Shyrock, Ft. Wayne; Secretary, G. E. Hunt, Indianapolis; Treasurer, R. T. Oliver, Indianapolis. Next place of meeting, Lake Maxinkuckee.

UNIVERSITY OF MICHIGAN DENTAL DEPARTMENT.

THE forty-ninth annual commencement was held on June 29, 1893. Fifty-three candidates received the degree of D. D. S. Matriculates for the year numbered 188.

OUR AFTERMATH.

A. I. BROWN, who holds the one-half and one-quartar mile bicycle State championship, and who has promise of becoming one of the "stars" in the bicycle world, is the son of dentist Dr. Ira Brown, Cleveland.

CONSOLIDATED.—The *Southern Dental Journal* and *Dental Luminary* have consolidated, and the new journal, *The Southern Dental Journal and Luminary*, will be published by Holmes & Mason, edited by Dr. H. H. Johnson, and printed at Macon, Georgia.

CHANGE IN FACULTY.—Dr. C. R. Butler has resigned as dean of the dental department of the Western Reserve University, Cleveland, and Henry L. Ambler has been appointed as his successor. John F. Stephen was appointed as professor of operative technics and Harry R. Garfield professor of dental jurisprudence.

A NEW DENTAL JOURNAL.—The *Pacific Coast Dentist*, published at San Francisco, California, with Dr. J. D. Hodgen, chief editor, and ten collaborators, has just made its appearance. No. 1 is very creditable in material printed, make up and appearance. We wish our brother dentists success in their undertaking.

HAS BROUGHT SUIT.—Dr. J. J. Stedman, of La Porte, Indiana, has commenced suit, by bill in equity, for an injunction and account of damages and profits, against Dr. H. De Pew, a member of the Dental Protective Association, filed June 17th in the United States Circuit Court for the Northern District of Illinois, at Chicago.

FIRE IN A LABORATORY.—A serious fire in the junior laboratory of the Michigan University dental college was narrowly averted on the morning of June 1st, by the opportune arrival of dispensing clerk, Henry Purfield. The fire was, however, quickly extinguished by Mr. Purfield, but not before it had consumed half a bench, burned a hole through the floor, and completely destroyed many laboratory instruments. The cause of the fire was a Bunsen burner, which had been left burning.

NEW COLLEGE BUILDING.—The Kansas City Dental College Association announce the purchase of grounds and buildings at the corner of Tenth Street and Troost Avenue, which will at once be remodeled to suit every requirement of a first class dental college, and will be ready for the opening of the next session.

The members of the association, the officers and faculty, congratulate themselves that they now own their building, in which there will be plenty of room for all departments, and that the difficulties under which students and teachers have heretofore labored on account of inadequate quarters, will be a thing of the past.

NOTES FROM COLUMBUS.—I am pleased to announce another addition to our fraternity in the portly and good-natured Dr. J. E. Barricklow, who has located on North High St.

Dr. J. R. Price, of this city, was married June 20th to Miss Jessie A. Ironside, an estimable and accomplished teacher in the Columbus public schools. We extend to Dr. and Mrs. Price our heartiest congratulations.

From present indications, Columbus will be largely represented at the World's Columbian Dental Congress.

The OHIO JOURNAL'S enterprise in publishing the full text of the Ohio dental law, with legal opinions concerning the same, likewise a list of registered dentists, makes the July number a valuable copy for reference.

The report of the State Board of Dental Examiners is commendable and evidences a year of laborious and faithful service.

In the list of registered practitioners we note the omission of any signs indicating the standing of those named. To that extent, in the writer's opinion, is the list inaccurate as a classified record of Ohio dentists. We believe that the names of all who are graduates, likewise all who were licentiates under former examining boards, and therefore legal practitioners before the present law went into effect, should have been so classified, thus making it self-evident who were the practitioners legalized only through the time limit clause in the law. Under the Ohio pharmacy law, the registration certificates are classified so as to indicate whether the possessor qualified by examination or the time limit route.

O. A.

[NOTE.—There were various reasons why the qualifications of registered dentists were not mentioned in the list published at present. When the registration is complete such a list will probably be prepared by the Board.
—Ed.]

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CONTRIBUTIONS.

WHY DO TEETH DECAY MORE RAPIDLY DURING SICKNESS THAN AT OTHER TIMES?*

BY F. S. WHITSLAR, D.D.S., YOUNGSTOWN, O.

IN order that our answer may be more clear and better understood, it becomes necessary to ask what is sickness? What are its causes? How do those causes act to produce it, and what are some of its effects?

It may perhaps be enough for our present purpose to say, that disease or sickness is any disturbance or interruption of all or any of the functions of the living body. The principal causes of these interruptions and changes of functions, which constitute disease, are sudden changes of temperature; various emotions of the mind—as fear, anger, grief, indigestible and all the various unwholesome and improper articles of food; malaria, various viruses and other poisons. They act chiefly if not entirely upon the system, in two ways—either by directly mixing with and altering the composition of the blood, as where virus is directly introduced into that fluid, or by some shock or irritation of the nervous system. The observable manner in which these agencies affect the functions of the living body is by altering the various

* Query answered at the Northern Ohio Dental Society, May, 1893.

The editor and publishers are not responsible for the views of authors of papers published in the OHIO DENTAL JOURNAL, nor for any claims that may be made by them.

secretions. The urine, the sweat, the bile, the gastric and pancreatic fluids, the milk and the saliva, some or all of them have been found more or less altered in most diseases. Furthermore, the blood, from which all the secretions are derived, is by many supposed always to be changed in disease. Instances have been recorded where a fit of anger has produced such a change in the milk of mothers as to cause the death of their infants in a very short time after their partaking of it. But as it is more particularly the saliva only—including of course the secretions of the salivary glands and buccal mucous membranes—that comes in contact with the teeth, or remains in contact with them, our inquiries shall mainly be confined to the changes that have been observed in that secretion.

Draper's Physiology, page 44, says, "that the saliva is alkaline, but in morbid conditions an acid reaction is by no means infrequent.

Lehman's Chemical Physiology says, "The secretions of the oral mucous membrane have an alkaline reaction. Human mixed saliva" (secretion of the salivary glands and buccal mucous membrane) "in an abnormal state has an acid reaction, and commonly in a fasting state."

Carpenter's Physiology says, "The reaction of the saliva is usually alkaline; that of the principal gland always so in health; while that of the buccal mucous membrane is acid; so that when the former predominates, as is always the case when food is being masticated and digested, the saliva is alkaline, while when the latter is more abundant, as is often the case during the interval of digestion, at the slow rate at which the salivary glandulæ then pour forth their product, the buccal saliva is frequently acid."

Simon's Chemistry of Man, page 295, says of human saliva, "When perfectly normal its reaction is alkaline;" page 301, "morbid saliva sometimes contains free acids; this is most commonly lactic acid, but in some cases acetic acid is likewise present."

In all cases of irritation and inflammation of the stomach, in intermittent fever, acute rheumatism, uterine affections, pleuritis and encephalitis, the saliva has an acid reaction."

Thus under various circumstances, and in many if not in most diseases, the saliva, according to the testimony of physiologists, is changed from its normal alkaline to an acid reaction.

Lehman says that the saliva is usually acid during fasting. This condition usually occurs, to a great extent, in most cases of sickness of such severity as to require continued active medication.

It is worthy of note that while the patient is sick enough to require medical treatment, whether from the direct effect of the disease in altering the secretions, or from the fasting consequent upon the sickness producing that effect, or both, the teeth are constantly bathed in almost the only kind of article that has, or can have, any deleterious effect upon them.

It may be said that this acidity is but slight in degree, yet it is frequently long continued and constant, and therefore must produce serious effects. Now, while it is maintained that teeth, after their emergence through the gums, decay more rapidly during sickness than at other times, there is, however, another time and manner in which diseases seriously affect the teeth. This is during the state of formation within the gums, where the acid reaction of abnormal saliva does not come in contact with them. Zymotic diseases, or in fact any disease at this stage of life, which interrupts or suspends the developmental process, will prevent them from a full and perfect development. It is not very uncommon to see teeth where there is but very little enamel on or near their cutting edges or grinding surfaces, while higher up on the crowns of the same teeth, it is of normal quantity and quality, showing that the developmental process had from some cause been suspended and afterward restored. Furthermore, this effect is made manifest by some of the teeth of the same individual being found imperfect in their construction, while the others are found sound and perfect. The imperfect ones being in pairs, and of the same class, showing that the same cause that acted deleteriously on one had the same action on the others that were in the same stage of their formative process.

Now to return to the question, why do teeth decay more frequently and more rapidly during sickness than at other times? I wish to notice two classes as examples—habitual beer drinkers and dyspeptics. I select these two classes because the effects are usually more marked than in any other kind of disease. The acidity of the oral secretions, in both classes, is generally most excessive, while the latter is peculiarly liable to great acidity of the gastric secretions, and this is frequently regurgitated into the mouth, and is often so strongly acid as to produce at the time a

very disagreeable effect upon the teeth. In such cases, if the teeth were sound before, they will be found most decayed at their necks, that is, just at the margins of the gums; for in such cases this acid finds most ready lodgment there, and is kept constantly in contact with the teeth. Besides, there too the enamel is thinnest, and affords, therefore, the least protection to the body of the tooth; and then what enamel there was will be found removed in large patches from many or even all of the teeth, and frequently softened and rendered friable to a much greater extent. If the teeth have the least imperfections in their formation—a want of union of the enamel at the lines of union of that substance, from the different points of its deposit, or are decayed ever so slightly, they afford lodgment for this acid and also afford a very favorable opportunity for its full and ready action, producing thereby most disastrous consequences.

An experience of nearly forty years satisfies me that in all diseases which change the saliva from an alkaline to an acid reaction, teeth decay more rapidly in proportion as the saliva is rendered more or less acid, and to the length of time that such change continues.

In conclusion, I wish, as far as possible, to correct a misapprehension in regard to the rapid decay of teeth during sickness. Patients will tell us that they were sick and doctor so and so ruined their teeth with strong medicines. Instead of saying, yes, medicine has ruined your teeth, we should say, no, medicines judiciously exhibited and properly administered, do not and generally cannot injure the teeth, and that most diseases do.

While medicines, when so administered as to secure the object for which they are given—the restoration of the secretions from an abnormal to their normal condition, the restoration of the body from disease to health—instead of injuring the teeth, protect them from injury.

THE CODE OF ETHICS.*

BY W. T. JACKMAN, D.D.S., CLEVELAND, O.

WHAT line of thought the committee on “Bill of Fare,” for this meeting intended I should take when it set over against my

* Read at the Northern Ohio Dental Society, Akron, May, 1893.

name "The Code of Ethics," I do not know,—whether I should criticise the present written code of dental ethics, try to formulate a new code, or write on ethics in general, has been left, it seems, for me to choose. When "The Code of Ethics" was assigned me by the committee to discourse upon, I thought this, like a great many other subjects, had been about written to death. But as *Ethics* is the science of human duty, I could not say no to the call, lest I might be thought a leech—always taking but never even attempting to give;—and if this be nothing more than an attempt, I trust you will receive it as coming from an honest heart, from one who ever has a desire to say or do something that will benefit his dental brethren,—for it is "line upon line and precept upon precept, here a little gleaned and there a little garnered," that adds to the sum total of human knowledge. "Every man owes to his fellow man the best service it is in his power to give. *His endowments fix the measure of his duty.* The man of great endowments who does not do all he might though he might do more than a man of small endowments, who does his best, is less deserving than the latter and dies a debtor to his fellows." *Written* laws are made to govern him who will not practice the "Do unto others as you would have others do unto you," and because of the fear of the penalty for the violation of laws he, if he does not in spirit practice the golden rule, is held, at least, in subjection. Of course our written dental code of ethics was made for the fellows who are not present at this meeting. A right purpose in life, if practiced, is what develops the broadest manhood and womanhood. Show me a man or woman who enters the dental profession with the conviction that he or she is there only to do the greatest amount of good to the greatest number and I will show you a professional person who needs no *written* code of ethics to govern him. On the other hand show me one who is practicing our liberal profession, the height of whose ambition is to acquire the 'almighty dollar,' and I will show you the personification of selfishness and where the *written* code of dental ethics needs to be enforced.

The true gentleman is a law unto himself and never is he more the gentleman than when he is dealing directly with his patient. We are, principally, from an ethical standpoint, what our previous education, our judgment and our present environment make us; if these be wrong and a man by superior wisdom rises above them, he but proves the only exception to the rule.

The question now arises, what from an ethical point of view shall be the rule of, or guide to, our lives in the practice of our profession? Kant says, as an ethical writer, "That conduct is right which when applied as a maxim, i. e. an accepted or working rule, is fit to be universal." When we speak of our being free moral agents we must not fail to discern this freedom as logically involved in the conscious fact of obligation. "We do not say I *can*, therefore I *ought* to do so and so, i. e. to exercise or assert my freedom, but I *ought*, therefore I *can* : Emerson puts this thought beautifully in verse when he says :

"So nigh is grandeur to our dust,
So near is God to man,
When duty whispers low 'Thou must,'
The youth replies, 'I can.'"

Noah Porter says, "In these lines, in their stirring appeal, is the utterance of the most solid of truths—that of a sense of inward power aroused by the trumpet call of duty."

When we are in conscious possession of the fact that we are under obligations to do certain things for a fellow being there is the call of duty, and duty never expects an impossible thing of us. To illustrate: A patient presents herself in your office and says, "Doctor, I desire your advice about and your skill in restoring my teeth to the best possible condition." Now a sense of obligation is upon you and your previous training, aided by your judgment shows you, after a careful examination, your duty to that patient. Suppose duty says, "These teeth must be filled with amalgam," and because of this dictum but few dollars can be placed to the credit account. But suppose at this juncture, base self rises, specter-like, with plugger in one hand, the other outstretched to catch the guineas that might be poured therein, if these same teeth be filled with gold, and, miser-like chuckle over the ill-gotten gains. This illustrates the ethical principle as applied to dentistry. Which shall be our choice? Shall we listen to that still, small voice of the ego, the soul, as it whispers, "Love thy neighbor as thyself," or shall we give heed to that grosser voice which stifles conscience, casts judgment to the winds and cries give me gold, *gold*, GOLD, and will be content with nothing less? The law of sacrifice is the law of ethics. My brother, if you have not placed yourself on the altar of your profession, a willing sacrifice, you have not a true conception of the ethics of

dentistry. What a multitude of noble men in our profession are proving to the world every hour of their lives, that the law of sacrifice is the code of ethics *par excellence*.

ELEMENTS OF SUCCESS.*

BY C. W. STEELE, D.D.S., BARRE, VT.

TRUE worth is always found in company with modesty, and self-satisfaction is a sure impediment to mental improvement.

The true elements of success will never be exemplified in dentistry, until the common backbiting and trivial contentions among brother practitioners shall be laid aside. Any member of the dental profession may obtain great success in performing well, all that the usual calls in practice demands of him.

Our dictionaries tell us that the dentist is one who makes it his business to extract and repair the natural teeth, also to insert artificial dentures; this definition might well apply if students were taught that these three branches were all that was necessary to make them a finished dentist, but considering the skill and duties required of the modern dentist, we find this definition covers but a small portion of the ground.

At the present time the dentist (and more especially a country practitioner) is expected to follow all the requirements embraced in the profession, but I hope the time is not far distant, when dentistry may be divided into specialties, and each branch requiring one who thoroughly educated in this department of his special calling, be it mechanical, operating or surgical, for one thing pursued to its completeness is worth a dozen things left unfinished.

The highest aim of the physician is to prolong life, and the highest ambition of every dentist should be to preserve the natural teeth.

One more element of success, and dental discipline is to be found in our dental colleges. Where would our profession have been to-day had it not been for the elevating factor of our dental colleges?

While so many are disposed to criticise them, yet an unprejudiced mind must admit, that without them dentistry to-day would

* Read before the Vermont State Dental Society, March, 1893.

be largely a mechanical art, and its statues would be far below what it now is.

To be sure the college education is but the frame work of the house, and it remains for us by careful study, close observation, and increasing skill to complete and adorn the edifice.

As a member of the profession, what does the fact of our holding a diploma from some reputable college signify? This is better answered by Edward Everett Hale, who says, "Every diploma given in a liberal profession contains three pledges, first a pledge to learn for all, second a pledge to practice for all, third a pledge to teach to all," and therefore it becomes a matter of wise discrimination as to what we say, how much we say, and how we say it.

And as regards the D.D.S. we cannot have a grander title, and it is he fulfills to the highest degree, does credit to himself, his profession and his alma mater that rises the highest and makes the best man.

The possession of knowledge and the power to apply it are very different; our greatest orators and most fluent debators are by no means always the best or most successful practitioners.

Presupposing that you have been educated for the profession of dentistry, and that your diploma entitles you to be considered equipped in all points for the practice. There are many things which will determine your success, or your failure; there must be enthusiasm and devotion, one must not be content with his knowledge, but be constantly increasing it, keep abreast with the times and learn the latest inventions and discoveries. To be sure we can not all be a discoverer or revolutionizer, like Edson, Koller, or Goodyear, but perchance we make a discovery, either accidentally or from long study, let us bring it before the profession, bring it to the State Dental Meeting for criticism, and if there is any good in your discovery or invention you will find it out, and if there isn't, well, you will find it out just the same.

The question is often asked me in the early summer months, "are you going to take a vacation? if so, when are you going, where are you going and how long are you going to be gone?" Now you must all agree with me when I say that dentistry is a trying occupation, it entails upon the individual who follows it faithfully, an undue nervous strain, which if too long continued, results in some kind of collapse.

The height and depth of human accomplishments should not be measured by the medium of money. How can a man advisedly ignore nature to the extent of digging after the dollars and cents to the exclusion of everything else? It is an injustice to himself and family that he should jeopardise his health and temper by a blind policy of continuous application.

The question is often asked, does it pay for a dentist to follow, month in and month out, the routine of office work without permitting himself, at reasonable intervals, the relaxation and recuperation which a judiciously spent vacation affords.

I am thoroughly convinced in my mind that the men who have accumulated the most money in dentistry, are men who have traveled and enlarged their ideas in intercourse with other dentists and with the world.

A man becomes a better individual and a better dentist by extended experience, and the most observant man in the world can not gain a very extended experience in a dental office alone.

If I were asked what I considered the most essential element, and what most conducive to success in the practice of dentistry, I would unhesitatingly answer judgment, and by judgment, as applied to the dental practice, I would mean the faculty which enables us to pursue that course in practice, and to select those means and methods most suitable to our individual surroundings, but, as judgment is progressive and experience of the essential elements of mature judgment, it is not strange that errors often occur at this point; many a man has become mentally dwarfed by the very poverty of his judgment.

After a student has passed through the collegiate course and finds himself still alive, and more frightened than hurt, with his diploma safely lodged under his arm, the next important subject upon which judgment must pass, is regards to a location, and to this we can not place too much emphasis on its importance, for failing in that as immature judgment often does, a change should be made, and if made at all, as soon as possible as a dentist's reputation constitutes a large part of his capital stock.

Mother nature has many wonderful fairy tales with which to beguile her children, but many are the men, ready and waiting to be led forth by fortune prince, and to soar high in life, simply as a professional tail to some other man's kite.

To be sure we meet with perplexities on every corner, but

the mental calibre of every dentist should be of such dimension as to overcome such perplexities, and as Father Atkinson once expressed it, "That perplexities are most frequent with the incompetent grumbler, who sees the difficulties in his pathway but lacks judgment and perception of earnestness, sufficient to overcome them."

One element, very essential to a dental practitioner is, that he must be a lineal descendent of Job, for in him patience must have its perfect work. He must be a judge of character and know how to influence his patients, for in dentistry as in every thing else, granted that both have other advantages equal, it is the man with the most patience and judgment that succeeds.

In conclusion, I would mention one other line of thought, and that is how to deal with another man's patients, this I consider a matter of great importance.

Very few professional men have been so blessed as to have passed, even through a limited career, without being forced in to unpleasantness, through misunderstanding arising out of their relation with other men's patients. Professional ethics is not a trivial consideration, but a matter of great importance, and when a patient comes to us having had work done by another dentist we should be only too cautious what we say; if there is fault and we are asked the nature of that fault we should modify our criticisms as much as possible, and even then in the kindest spirit, and the mildest language.

Many are apt to condemn and criticise on slight evidence, but were these same decriers held to account for their own failures, their excuses would be many, and their judgment obscure.

It is generally accepted by professional men as being quite outside the bonds of etiquette to criticise unfavorably the work of another qualified practitioner, and the offence is still more aggravated when the criticism is offered without solicitation.

But if work has been well done, make special emphasis of the fact. While I believe in true courtesy and in being charitable to other dentists, still we ought not to deceive ourselves, and I fancy no better advice can be given as regards professional ethics than the motto "Do unto others as you would that they should do unto you."

Much depends on the careful consideration of the code of ethics in dentistry; measure yourself truthfully and critically,

and relieve yourself if possible of the awkward position of being called an inveterate grumbler and chronic kicker, for the general principles of equity and common sense should be a sufficient guide to us in our relations with our patients, our profession, and ourselves.

PRESIDENT'S ADDRESS.*

HISTORY OF DENTISTRY IN VERMONT.

BY G. F. CHENEY, D.D.S., ST. JOHNSBURY, VT.

IN looking up the early history of dentistry in the State, so far as I have been able to trace, it was first practiced in Brattleboro, by Dr. J. W. Smith, in 1833, where he remained a short time, then removed to New York city. Then followed Dr. Joseph B. Crosby, who went to Greenwich, N. Y., about 1838; died in 1868.

In 1841 Dr. A. D. Putnam settled in Brattleboro, coming from Greenwich, N. Y., a student of Dr. Crosby, and has been in constant practice ever since.

Dr. Horace Saxton came to Burlington about the year 1834. Prior to this time a few traveling dentists had visited Burlington. About this time a Mr. John Lewis, who was born in Meadville, Pa., in 1810, was at work in a jewelry store making spoons, and used to make Dr. Saxton's gold plates for him. In 1836 Dr. Saxton hired Mr. Lewis to work in his office filling teeth, where he remained a year, then opened an office for himself. In 1842 he took his brother, Dr. James Lewis, as a partner. This co-partnership lasted until 1847, when Dr. John Lewis went to Buffalo, N. Y., where he died in 1883, leaving a son, Dr. Theodore G. Lewis, who is a member of the firm of Snow & Lewis, manufacturers and dealers in dental goods. Dr. John Lewis was an inventive genius and invented several things pertaining to dentistry, among them a dental engine, probably the first ever made. This engine was arranged to work with a crank turned by hand, and was made before his leaving Vermont.

Dr. James Lewis remained in Burlington, and is one of the two dentists in the State who have been in actual practice for fifty years.

* Read before the Vermont State Dental Society, March, 1893.

Dr. Lewis was the first President of the Vermont State Dental Society; has been President of the New England Dental Society one year, and a member of the State Examining Board since its organization, and has contributed several articles to the dental journals. He is a graduate of the Pennsylvania College of Dental Surgery and the Jefferson Medical College of Philadelphia, also the Medical Department of the University of Vermont.

Dr. Lewis has a son, Dr. Chas. F., practicing dentistry in London, England.

Dr. Lewis used ether in a few cases, the year it was discovered, in 1846.

Dr. Ralph Kilburn (long since dead) located in Montpelier, in 1840. Dr. Kilburn had four sons who entered the dental profession. Two went to St. Johnsbury, where they remained several years and then removed to Illinois. The other two I am unable to trace.

Between the years 1835 and 1840 two brothers, by the name of Bigelow, practiced in Brandon. One of their partial plates is still in existence. It was carved from a piece of bone and fastened in the mouth by silver springs riveted to the plate of bone and clasped about the adjoining teeth.

The years 1844 and 1845 found dentists in nearly every county, among them Dr. E. V. N. Harwood, at Rutland, where he remained until he died, a few years ago. At Montpelier Drs. Newton and Forbush, both remaining until their death. The former leaving a son, who is still in practice there. Dr. Forbush died in 1892. He had been quite prominent in State Society work, holding the presidency one year and was a member of the Examining Board from its organization until his death.

Dr. Gustin, at Chelsea, long since dead. Dr. Blake, at Bellows Falls, also dead. Dr. L. Gilman, at St. Albans, has been in constant practice since. Dr. Gilman, in speaking of dentistry in his county, previous to 1845, says: "A Dr. Whitemore had traveled from town to town doing dental work that was excellent. Gold fillings nearly equal to those of our best practitioners at the present day." Dr. Gilman was the first one in the State to use nitrous oxide gas for extracting teeth, in 1863.

Dr. J. A. Farwell was in practice in Brattleboro from 1847 to 1850, when he died.

Between 1850 and 1860 Dr. Coe located in Vergemms, where he died about 1885. Dr. O. D. Post, at Brattleboro, is now out of practice and living in New York.

Dr. Newton, at St. Johnsbury, remained a few years and was succeeded by Dr. J. L. Perkins, still in practice.

Dr. D. W. Prime, at Brandon, where he still resides, gave up practice after a few years and now devotes his time quite extensively to stock raising.

Dr. Scranton, at Bennington, was the inventor of the first automatic mallet, for which he received a patent, afterward selling it to Snow & Lewis, who improved upon it and put it on market as the Snow & Lewis automatic mallet.

Dr. Harris, at Middlebury, now dead.

Kilburn Bros., at St. Johnsbury, remained a few years. One died in Chicago, the other in Aurora, Ill.

Dr. O. H. Reed, at Barree, where he still remains in practice. Dr. A. S. Whipple, at Danby, where he still remains, graduated at the Castleton Medical College, in 1847. Dr. R. G. Gilbert, at Cambridge, still in practice.

Since 1860 the number of dentists in the State has gradually increased until at the present there are about one hundred and twenty-five or thirty.

The organization of the State Dental Society, in 1877, has had a good effect upon dentistry, and the meetings have been full of interest and well attended. The society has a membership of seventy-six, which is a large percentage of those eligible to become such. For the last three or four years the attendance has been nearly one hundred, including dentists from the neighboring States and Canada.

Papers have been read and clinics given from time to time by some of the most eminent men in the profession.

It has been impossible to find out the number of graduates in the State, but the number will not vary much from forty.

The dental profession in Vermont has one representative in the American Dental Association, eleven in the New England Dental Society, three in the Connecticut Valley Dental Society.

Vermont has sent out several men who have become quite prominent in the profession in other States.

Prof. Isaac J. Wetherbee, of Boston, Mass., was born in South Reading, in 1817, has been in practice in Boston for nearly

fifty years, graduated at the Baltimore Dental College, in 1850, was Professor of Operative Dentistry in the Boston Dental College for fifteen years, and has held the presidency of the college for over twenty years.

Prof. L. D. Carpenter, of Atlanta, Georgia, is a native of Lyndon, a true representative of the Scotch-English type. He went South in 1858. His efforts have always been for the best interest of the profession, and he has received all the honors possible to be conferred upon him by the profession in Georgia and the Southern States. He has been Vice-President of the American Dental Association, and is at present Dean of the Dental Department of the Southern Medical College, and a member of the Executive Committee of the World's Columbian Dental Congress.

Dr. S. B. Brown, one of Indiana's oldest and best known dental practitioners, was born in Marlboro, this State. He began his study of dentistry with Drs. Putnam and Post, of Brattleboro, received his certificate of qualification to practice November 1st, 1852. He started for Poultney, near the N. Y. State line, walking the distance of nearly one hundred miles. There Dr. Martin Jeff helped him to a circuit practice in New York, including Ticonderoga, Crown Point, Schom Lake, Chester, and Elizabethtown. After two years he went to Piqua, Ohio, where he built up a good practice, remaining six or eight years, then going to Fort Wayne, Ind., where he is still in practice. Dr. Brown is a graduate of the Pennsylvania College of Dental Surgery and of the Fort Wayne Medical College. He has been President of the Mississippi Valley Dental Society, of the Indiana State Dental Society, and a member of the Indiana Examining Board, a trustee of the Indiana Dental College and its present president.

Prof. Edgar D. Swain, of Chicago, was a native of Vermont, went to Illinois, when quite young. At the breaking out of the Rebellion enlisted in an Illinois regiment and was promoted to be colonel of his regiment. After the war he began the practice of dentistry, in Chicago, and is now Dean of the Dental Department of the North-Western University.

Chicago has several other Vermonters in the profession: Dr. Daniel B. Freeman, Dr. A. W. Freeman, Dr. I. A. Freeman, Dr. Arthur B. Freeman, Dr. Amos G. Nichols, Dr. A. G. Swazey, and Dr. O. D. Swain.

Dr. W. W. Ormsby, of Geneva, Ill., is also a native of Vermont.

Dr. A. H. Fuller, of St. Louis, Treasurer of the American Dental Association, went from Fairhaven.

Drs. Henry S. and Ed. C. Chase, of St. Louis, Mo., went from Woodstock. Dr. J. A. Bowman, of St. Louis, is also a Vermonter.

Vermont is represented in Minnesota by Dr. J. A. Bowman, Minneapolis, and Drs. George and Louis T. Lowton, of St. Paul.

Dr. Norman G. Kingsley, New York city, is a native of Pittsford, Vt. He has built up a large practice in Orthodontia and in the making of cleft palates, making these two subjects specialties. He has added considerable to dental literature, the most important being his work on oral deformities.

Dr. E. V. McLeod, of New Bedford, Mass., went from Brandon, where he was a student with Dr. Prime. He has been identified with the best interests of the profession, and was for a few years on the clinical staff of the Boston Dental College, but upon the passage of the new dental law gave up his position on the college staff to accept an appointment on the Examining Board, which he still holds.

Dr. Edgar Palmer, of La Crosse, Wis., is a native of Woodstock.

TREATMENT OF A CASE OF EMPYEMA OF THE ANTRUM.

BY DR. S. T. YAPLE, CHILLICOTHE, O.

MR. C——, druggist, married, aged 33, sallow complexion, applied to me for treatment August, 1892.

Complained of intense pain in a superior left second molar, also in the superior left maxillary region, head-ache, and sickness of the stomach. The nasal opening was entirely closed. I examined the teeth carefully, found other bad teeth, but none so sore as the one complained of, which was elongated, dark and had a large amalgam filling in it. I then examined the region surrounding the tooth and found it very sore, inflamed and swollen. Patient found relief by trying to force air through the left nostril. The breath was very offensive.

Upon enquiry the patient told the following story: When a

boy about fifteen years of age I was kicked in the face by a horse, the side of my face became very sore, and this tooth was loosened and paining me for several days. I applied to a dentist who filled the tooth, which was still sore, and continued so for several days, then suddenly subsided, causing no further trouble until about three years ago, when it took spells of hurting as it had before, excdpting that the entire side of my face was affected, since that time it has been growing steadily worse.

Without further questioning, the tooth was extracted. A large quantity of very offensive pus was discharged and relief was instantaneous. Patient was told to return in about three hours, which he did, complaining as before. The opening into the antrum had closed. I reopened and enlarged it. Portions of necrosed bone were removed, followed by a large quantity of pus, the antrum was then washed with tepid salt water by the use of Moffits water syringe, passing the tube well forward into the nasal region, causing the water and pus to flow through the nose. This treatment was kept up for several days, followed by peroxide of hydrogen. Permanganate of potash was then used in conjunction with Zn sulphate, a 5% solution being used. A rubber tube was inserted into the opening and allowed to remain. The patient was treated in this way for about two months twice a day, then once a day for about one month. At no time after the first month was there any discharge; the patient had no more pain after the second treatment, the opening is established, and the syringe is still used by the patient. There is no indication whatever of a recurrence of the disease, the pain which had annoyed for three years has entirely disappeared.

I think this is a case of empyema which was caused wholly by the diseased tooth.

THE AMERICAN DENTAL ASSOCIATION.

PURSUANT to adjournment the 33rd annual meeting of the American Dental Association was held in Chicago, August 12, 1893.

The meeting was held in Kindergarten College Hall. The President of the Association Dr. J. D. Patterson, Kansas City, occupied the chair.

After a brief opening address, the following resolutions were offered by the Executive Committee:

Whereas, The date of our meeting, which was fixed for August 15 under the expectation that it would immediately precede the opening of the World's Columbian Dental Congress, has been changed because of the change in the date of holding the Congress; therefore

1. *Resolved*, That the unanimous action of the executive committee in calling the meeting in advance of the day selected is hereby approved and declared to be legal and binding.

Whereas, It has been generally understood by the members that in order that more interest and work should be concentrated in the Congress, the meeting of the Association this year should be as nearly as possible of a merely formal character; therefore

2. *Resolved*, That the dues for the current year be remitted and the treasurer be instructed to give receipts in such form that a single payment shall cover the dues of the current and the coming year;

3. *Resolved*, That the meeting this year be adjourned without any election of officers, as under the constitution the effect of such non-election will be to make all officers elected last year hold over.

4. *Resolved*, That all the records and transactions of this year be considered as merged in the proceedings for 1894 and so published, in order that in spirit and in name the officers elected last year shall not be considered to have held office and exercised their functions for two sessions;

5. *Resolved*, That the treasurer be instructed to pay all properly authenticated bills;

6. *Resolved*, That Old Point Comfort be selected as the place of meeting for next year.

The first and second resolutions were unanimously adopted without discussion.

To the third resolution Dr. W. C. Barrett, Buffalo, N. Y., offered as an amendment that a single ballot be cast for the re-election of all officers, in order to avoid establishing a precedent allowing officers to hold over. The amendment was not adopted; the original resolution being adopted.

By unanimous vote Resolution 5 was adopted and the treasurer instructed to pay all duly authorized bills.

Resolution 6 elicited a spirited discussion.

Dr. J. Taft offered a resolution that other places than Old

Point Comfort, especially those more central, be given a chance.

Dr. C. C. Carroll offered a vigorous protest against such informal "cut-and-dried" *resoluting*.

The claims of Lookout Mountain, San Francisco, Niagara Falls, Saratoga, were respectively urged.

Dr. L. D. Shepard, President of the Congress stated that the Executive Committee in offering the aforesaid resolutions had acted in compliance with the duty laid upon them by the Constitution of the Association.

The report had been unanimously adopted by the committee, which was, however, but the servant of the association. It was within their province to accept or reject any or all of the resolutions. In conclusion he offered as a substitute for the sixth resolution that a nomination list be opened and the ballot taken. This was accepted and as the result of the ballot it was announced that Saratoga had 1 vote; Lookout Mountain, 4; Old Point Comfort, 45; Niagara Falls, 3; San Francisco, 6.

Old Point Comfort, Va., was accordingly declared the place of meeting for the next session.

On motion, the reports of all other committees were deferred to next year, and the American Association adjourned to meet at Old Point Comfort, in 1894.

WORLD'S COLUMBIAN DENTAL CONGRESS.

(Special Report for THE OHIO DENTAL JOURNAL, by Mrs. J. M. Walker and assistants.)

IN accordance with the general program outlined in the Prospectus issued by the general executive committee, the World's Columbian Dental Congress convened in first general session in the Hall of Washington, Memorial Art Palace, Chicago, at 11 a. m., August 14, 1893.

The session was called to order by Dr. W. W. Walker, chairman of the Executive Committee, who called upon Dr. J. Taft, Cincinnati, to invoke the divine blessing upon the deliberations of the Congress.

Dr. Walker then introduced Hon. C. C. Bonney, President of the World's Congress, Auxilliary, who opened the congress in an address in which he specialized dentistry as a conspicuous representative of an important movement of the present age—*viz*: the specification of scientific pursuits. He said in brief that

the old fields of research and application were so narrow that they were readily mastered but by the marvelous development of modern civilization all this has been changed. Only a powerful glass can now trace the horizon of scientific attainment. In the swiftly developing evolution of arts and sciences, the great work of orderly differentiation has gone forward subdividing professional and all other pursuits, so that a mere general knowledge does not suffice in any department of science or of art. The general physician and surgeon can no longer be trusted to deal with exact mechanism of the eye or the ear, nor the important and delicate relations of the teeth. A lifetime may be spent, and the highest abilities and attainments be exercised in an apparently limited and specialized field. The old-fashioned *tooth-carpenter*, well named in his day and time, has become, like the fabled Dodo, an extinct species, and we have in his place the modern doctor of dental surgery—accomplished learned and skilled; and familiar with anatomy, physiology and pathology, histology, etiology, bacteriology, chemistry and metallurgy, as well as with the practical operations of the art.

In conclusion President Bonney congratulated the Congress on the admirable program offered, and the international character of the papers to be presented.

Dr. W. W. Walker, chairman of the Executive Committee was then presented and addressed the Congress briefly on the subject of the work accomplished by the Executive Committee, working hand in hand and shoulder to shoulder to accomplish for the dental profession that which places it where it should be placed—in the front rank of the scientific professions of the world.

Dr. Walker next introduced Dr. L. D. Shepard, president of the World's Columbian Dental Congress, and the other officers of the Congress, the members of the Executive Committee and the Committee of the Woman's Branch.

The resolutions creating the Congress were then read by Dr. A. W. Harlan, Secretary-General of the Congress.

The announcement was made that the Hon. John Temple Graves, of Athens, Ga., who was to have delivered the address of welcome to the foreign representatives, was unable to be present owing to sudden illness.

Dr. J. Y. Crawford, who was called upon on very short

notice, responded in a greeting noted for cordiality, warmth and hospitality. He said that he stood as the mouthpiece not only of the dental profession of America but of the whole people, expressing the voice of seventy million souls, saying with and for them—"Be with us, among us, and assist us in furthering the grand work of the dental profession." He said that of all questions that address themselves to the civilization of the nineteenth century, dental surgery stands at the head of the list, because it is not a universally recognized fact that the human family needs the good offices and attention of the dentist as they need their doctor, preacher, teacher or lawyer. With the further advancement of the dental profession, civilization will be touched and benefitted by the increase of the average length of human life, becoming a potent factor in the perpetuation of the most remarkable civilization in the world's history. In extending a special welcome to the representatives from foreign countries he said that the ensign of the republic was not only an insignia of political and religious liberty but a sign of the gracious hospitality extended to-day. He said, the united sentiment of this great nation passes from me to you while uttering these words of welcome.

Letters regretting inability to attend because of illness were read from Dr. W. W. H. Thackston, Farmville, Va., and W. H. Morgan, Nashville, Tenn., two of the Vice Presidents.

Dr. L. D. Shepard then delivered his Inaugural Address in which he reviewed the history of the Congress from its first inception. Dr. Shepard included in his address an outline of the evolution of the profession with the salient points marking its progress. He dismissed so-called ancient dentistry with very few words, pronouncing dentistry even as an art modern. He sketched vividly the conditions existing immediately preceding the establishment of the first dental college, 1839; the publication of the first dental journal, 1840; the organization of the first dental society, and the enactment of the first state law regulating the practice of dentistry. The next great event in dental history was the most notable and beneficent discovery of all ages—that of anesthesia, to which no other discovery or invention is comparable. In the next decade, colleges, magazines and associations increased and multiplied rapidly. Of the next decade the most momentous discovery was that of the value of the cohesive prop-

erty of gold, creating a new era in operative dentistry, the era of *restoration*—the parting between antique mutilation and disfigurement and the subsequent devotion to beauty and typical form. This was the first great advance in practice, and was at once supplemented by improved instruments, the mallet, the rubber dam and the engine. These combined wrought a complete revolution in practical dentistry. Dr. Shepard also described the ebbs and floods in the tide of prosthetic dentistry, the elevation of the standards of the colleges, the adoption of codes of ethics, and the most recent advance in the retention of teeth or roots by the invention of the modern artificial crown and its corollary the bridge—the most distinctive improvement of the past twenty years. Later years are marked by an increasing interest in the deeper causes of physiological function and of pathological departure from the normal. Histological investigations are pursued with great thoroughness, and the dental tissues are studied by the microscopist with great courage and self-denial.

The theory of the bacterial origin of disease and antisepsis has engrossed much study and research bringing a more thorough acquaintance with ptomaines and leucomaines, giving practical results in the sterilization of everything connected with operative work. Prophylaxis is developing along physiological lines in the observance of the laws of hygiene, the teeth as parts of the general economy, sharing in the great benefits thus derived. In concluding, Dr. Shepard referred to the great army of those "gone before" the present Congress, being but the culmination of their patient, devoted, self-sacrificing work for God and man.

Dr. Shepard closed his address with the hope that this week may be so full of inspirations and valuable results that it shall be a mile-stone in the march of dental professional progress.

(To be continued.)

THE ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

Continued from page 388.

DR. J. J. R. PATRICK of Belleville, Ill. read a paper on

THE EFFECT OF ERUPTIVE DISEASES ON THE TEETH.

There is no portion of the living body so complicated, so subject to varied and numerous changes, and that presents so

many obstacles to treatment when diseased as that portion of the human skull which is occupied by the face. The chambers are lined with mucous membrane, continuous and communicating with each other, with the pharynx and with the nasal and oral cavities. It is in this region where all the special nerves are clustered, and the amount of involuntary nerves with which this region is endowed makes it the very center of involution. The vital activity of this portion of the human body is well seen in the frequent flushing of the face in early childhood, when the sinuses and processes are forming and the teeth are developing; at this period the process of nutrition attracts more vital activity to these parts than can be found elsewhere, and can only be compared to the vital redundancy of the blood vessels in the antlers of a stag when growing, or the orgasm of a gravid uterus; even in advanced life there is always more or less turgescence present. John Hunter called this region "The sensitive center" of the human body. The tendency of this part of the body to be overrun with red blood, disposes it to become more frequently the seat of affliction; erysipelas is oftener detected in this region than in any other, and it is the principal seat of pustules in small-pox and ecchymosis in other eruptive fevers.

The greatest number of teeth to be found in the human jaws at one time, in a state of progression and retrogression are in the jaws of a child from five to five and a half years old. At this age there are forty-eight teeth—twenty eight permanent teeth more or less calcified and ossified, and twenty deciduous teeth undergoing a retrogressive physiological metamorphosis; but the germs of the third molars at this period are not present. It is only from a child between four and five years of age that a perfectly formed deciduous tooth can be obtained, for we find that before the fourth year the root ends of these teeth are not quite formed, and after the fifth year they commence to exuviate. In all the transmutations which take place in the retrogressive and progressive phenomena presented by the teeth the surrounding tissues are built up and removed with equal pace. All the anterior portion of the jaws are subjected to four changes during life. *First*, the progressive, and *Second*, the retrogressive metamorphosis of the twenty deciduous teeth with their processes. *Third*, the progressive, and *Fourth*, the retrogressive metamorphosis of the twenty succedaneous teeth.

In the posterior region of the jaws in which the twelve permanent molars are developed there are but two changes which take place: *First*, the progressive which commences in youth and continues until middle age, and the retrogressive which commences in the decline of life and continues until extreme old age. In the region of the molars the growth of the jaws is from the posterior to the anterior and vertical.

In the region of the succedaneous teeth vertical only; thus the arch in the succedaneous region is not increased in size but the whole jaws are elongated and the palate increased in depth. Now it is well enough to observe that the eight bicuspid teeth which belong to the permanent series in man are not preceded by teeth of the same character or form, nor do they occupy as much space in any direction in the form of their crowns as their predecessors.

They therefore are classed as a definite and separate species from the true molars. The deciduous molars which precede the bicuspid teeth occupy a different position in their relation to the power that moves the lower jaw upon the stationary upper jaw.

During a natural lifetime there are developed in the oral cavity of a healthy human being fifty-two distinct and complex organs, which include the twenty deciduous and the thirty-two permanent teeth.

Now in a healthy twenty-five year old subject in which the teeth are fully developed it would be difficult to find a perfect set of teeth fulfilling all the requirements of *Form, Volume, Number, Direction, Structure, Nutrition* and *Disposition*, in relation to each other, without seeking an ideal standard of perfection wherewith to judge them.

Whatever may be said in regard to the malformation of the bony portions of a tooth there can be no question as to the time in which defects of the enamel are produced, and as this portion of the tooth is the first to form, and is formed before it is exposed to external influence, the cause of its malformation must be internal, or defect in *nutrition*, and must be sought for in its early formation. The development of the deciduous teeth commences in the seventh week of *intrauterine life*.

Seventh week: The papillæ of the first deciduous molars make their appearance.

Eighth week: The cuspids.

Ninth week: The central incisors, and soon after, lateral incisors. The germs of these teeth are observable at the periods stated, but their follicles are formed later.

Tenth week: The sides of the primitive groove before and behind the first molars approach each others, sending off processes from each side, which meet and inclose them in follicles.

Eleventh week: During the latter part of the tenth week similar follicles are gradually forming around the cuspid teeth, and the papillæ of the second molars make their appearance.

Eleventh and twelfth weeks: The incisor follicles are formed.

Thirteenth week: The follicles are formed for the second molars. (The germs and follicles of the lower teeth do not appear quite as soon as the upper.)

Fourteenth week: Provision is now made for the production of the teeth of replacement or succedaneous teeth, by a secondary groove immediately behind the primitive groove, in which the germs of the central incisors appear, next the laterals next the cuspids, and lastly the first and second bicuspid, from which the sacs and pulps of the twenty anterior permanent or succedaneous teeth are to be produced.

Sixteenth to seventeenth week: The primitive groove has now extended itself back of the second molars, and from the floor of which the papillæ and follicles of the first permanent molars begin to develop.

The periods of calcification of the deciduous teeth commence during the sixteenth or seventeenth week of *intrauterine life* in the following order:

First, on the first molars.

Second, on the central incisors.

Third, on the second molars and lateral incisors.

Fourth, on the cuspids.

The first tooth germs that appear in the human subject are the anterior deciduous molars; they do not make their appearance through the gum, however, until the incisors appear. The follicles of the permanent teeth are formed about the time the deciduous teeth commence to calcify, but they undergo a period of comparative rest and do not commence to calcify until a little before or immediately after birth, in the following order:

First permanent molars a little before or immediately after birth.

The central incisors five or six months after birth.

The lateral incisors eight or nine months after birth.

The canines or cuspid teeth nine or ten months after birth, but they do not come into use until after the first bicuspid.

The first premolar which is a bicuspid commences to calcify at or soon after the second year.

The second premolars at three years.

The second permanent molar between the fifth and sixth years.

The third molar or *dens sapientiae* begins to calcify about the twelfth year. This order of succession in calcification is described for the lower jaw, the teeth of which usually appear earlier than the corresponding ones in the upper.

I have entered thus far into a description of the origin and development of the teeth; in order to illustrate the detrimental influence of eruptive fevers on the teeth during the periods of their formation; and while eruptive fevers are not the only factors to be recognized in producing abnormal conditions in tooth development, I consider such fevers a prolific source of faulty nutrition in these organs; as the following cases observed in my practice will fully exemplify.

Mrs. S., during the fifth month of gestation was afflicted with scarlet fever—recovering, in the course of time gave birth to a child. This child's teeth appeared unusually early, the enamel discolored, pitted and granular and absent at the incisive margins and the teeth barely extended beyond the gum. He is now fifteen years old with all his permanent teeth except the third molars. These second teeth, with the exception of a little decay, are in good condition, the enamel smooth and white and all the teeth large and strong. Three years later another child was born, and soon after the first child contracted the measles and the second child also contracted the disease. In the course of time the deciduous teeth of the second child appeared, all in excellent condition, but were lost unusually early, and the second set appeared in the following order: The sixth year molar at four years. The central incisors at five years. The premolars between the sixth and seventh years; and the cuspids between the eighth and ninth years. All these teeth are discolored, pitted and granular, and the enamel is worthless as a protection to the dentine. Now a third child was born, who is now six years old, and has not been

subjected to the same influences that his brother and sister were during the period of dentition and he enjoys the luxury of a good clean set of deciduous teeth. The first permanent molars that are now appearing are so far as observed, in good condition.

While the teeth during the process of formation are liable to be influenced by eruptive fevers, the alveolar process of the deciduous teeth, during the retrogressive metamorphosis which commences between the fifth and sixth years, is also liable to be affected by the same cause; for at this period all the nutrient vessels that supply the deciduous process are on the wane, and the low vitality of the parts makes this region a vulnerable point during the existence of eruptive fevers.

The discussion was opened by Dr. G. V. Black, Jacksonville; W. N. Morrison, St. Louis; I. P. Wilson, Burlington; T. H. McIntosh, Bloomington; W. J. Cormany, McCarroll; A. O. Hewitt, Chicago; A. W. Harlan, Chicago; E. K. Blair, Waverly; L. C. Ingersoll, Keokuk; W. O. Kulp, Davenport; T. H. McIntosh, Bloomington, and closed by essayist Dr. J. J. R. Patrick.

Dr. A. C. Hewitt of Chicago read a paper entitled, "Things Old, New, and Useful in the Operating Room."

He said: Clean, soft hands, whether old or new, are still useful. The successful busy dentist must sometimes handle flask, file and forge, etc. His hands get soiled. Soaps will not always whiten. The following is excellent:

R	Pulv. Acidum Boracicum,	-	-	-	lb. i.
	" Sodæ Carb.,	-	-	-	lbs. ii.
	" Pumice,	-	-	-	lb. i.

Glycerine q. s. to form paste.

Sig. Use as a soap.

If hands are stained as with nitrate of silver, wet the stains and rub with cyanide of potassium, then wash. Never apply soap first as that sets the stain. This paste is searching in action. An emollient should follow, and as perfumes are not always agreeable to the patient, especially in the mouth, nothing is better to soften, smooth and render the hands agreeable than the following lotion:

R Fowler's Solution.

[Liq. Potassæ Arsenitis],	-	-	-	Fl. ℥ iv.
Glycerine,	-	-	-	Fl. ℥ iii.
Bay Rum,	-	-	-	Fl. ℥ xvi.
Aq. Pura,	-	-	ad.	Fl. ℥ xxxii.

Sig. Lotion for hands, face, etc.

After washing with the paste and drying with a towel, moisten the hands with the lotion and let it evaporate. In making this lotion use only the best of bay rum; that distilled from the bay leaf, not bay oil and alcohol.

An antiseptic spray, prepared to be used from the atomizers of the drug store, is of special value, prepared as follows:

R	Antiseptic Pastilles (Carl Seiler's formula, Pas-	
	tilles, - - - - -	i. ss.
	Aq. Pura, - - - - -	3 i.
	Sol. Hyd. Chlor. Cocaine 4%, - - -	3 ss.
	Glycerine ad qs., - - - - -	3 ii.

Sig. Use us spray.

Crush and dissolve the pastile first in water, boiling water is quicker, then add cocaine. It will turn milky and cloudy. Add glycerine, which will immediately make the liquid clear. Spray nose, mouth and throat, and you will be safe. This spray is admirable to benumb sensitive gums, before using the gilling-twine to hold rubber dam in place. It is exceedingly useful also in allaying irritability of soft palate in taking impressions.

A convenient way to make and keep a 4 per cent. solution of cocaine, is—

R	Hyd, Chlor. Cocaine,	-	-	-	grs. xxxviii.
	Glycerine,	-	-	-	3 ii.
	Aq. Pura,	-	-	ad.	3 ii.

M.

Thus prepared and covered from the light the solution will keep an indefinite time.

A safe, efficient cleanser of instruments antiseptically is hydronaphthol.

R	Alcohol,	-	-	-	-	-	3 ii.
	Hydronaphthol,	-	-	ad.	-	-	grs. xx.

M.

Put into a wide-mouthed bottle—as a quinine bottle. Dip your instrument, whether excavator, forceps, searcher, or pyorrhœa blade, into the liquid, and lay away to dry. The most delicate steel will not be tarnished by it and it needs no wiping.

Hydronaphthol as a dressing to septic root canals has few equals in value. I think there is nothing superior or more convenient;

R Ol. Caryophilli.

Ol. Cassia aa, - - - - - Fl. \bar{z} i.

Hydronaphthol, - - - - - grs. xx.

M.

Sig. Antiseptic for root canals.

If you wound your hands and fear blood poisoning, at once apply eucalyptol, and cover with chloro-percha, and you will be safe.

A local anesthetic, I call compound cocaine pigment, is prepared as follows;

R Cocaine Hydrochlorate, - - - - - gr. cxx.

Atropinæ, - - - - - gr. $\frac{1}{16}$.

Strophanthin, - - - - - gr. $\frac{1}{5}$.

Hydronaphthol, - - - - - gr. x.

Ol. Caryophilli, - - - - - \bar{z} ii.

Ol. Cajuputi, - - - - - \bar{z} ii.

Glycerine. - - - - - ad. \bar{z} i.

M.

Sig. Use with applicator as local anæsthetic.

The cocaine should be in characteristic prisms and clean crystals, as that sold in fine powder is often adulterated with morphine and other substances to give it weight. Pulverize the cocaine before mixing to hasten solution.

In Prof. Ingals' work, "Diseases of the Chest, Throat and Nasal Passages," is to be found a formula for local anæsthesia, which is as follows, and which I give by his permission:

R Atropinæ, - - - - - gr. $\frac{1}{16}$.

Strophanthin, - - - - - gr. $\frac{1}{5}$.

Cocaine Hyd. Chlor., - - - - - gr. xx.

Acid Carbolic, - - - - - gr. x.

Cl. Caryophilli, - - - - - min. iii.

Aq. Dest., - - - - - Fl. \bar{z} i.

M.

Sig. Local anesthetic.

Dr. Ingals informed me that the formula had been used under copyright, advertised for "painless dentistry," etc. He also said that he deemed it safe as a "hypodermic" to the extent of five minims, and that its local anesthetic effect was marked and reliable.

To apply the "pigment," bathe the gums surrounding the

teeth to be extracted, with alcohol and hydronaphthol to remove mucus and all foreign substances from the gums and membrane surrounding tooth neck and roots. This is important. 2nd. With warmed wax or modelling compound take an impression of the teeth or roots. Remove from the tooth and slightly enlarge and deepen the impressions of the several teeth or roots to be drawn. Place a small pledget of absorbent cotton dipped in the pigment in the enlarged tooth and root impressions, and carry to the mouth, which, after the alcohol, should be made as dry as possible. Press firmly home and hold there from four to ten minutes. Three things are essential to success; clean gums and necks of teeth, absence of saliva, and close contact by the mixture.

The discussion was opened by Dr. Garrett Newkirk of Chicago, followed by G. V. Black of Jacksonville, W. A. Stevens of Chicago, F. H. McIntosh of Bloomington, Geo. D. Sitherwood of Bloomington, C. N. Johnson of Chicago, and closed by the essayist.

Dr. E. H. Allen of Freeport then made the report of the Committee on "Dental Art and Invention."

(To be continued.)

ALL SORTS.

Tickner (W. D.) on A Method of Uniting Pieces of a Broken Denture.—To adjust and hold in place the pieces of a broken denture preparatory to mending, fill a lower impression cup with softened modeling compound as to take an impression. Press the teeth of plate into this, and bring the edges of fracture together accurately. When the compound has become hard dip the plate into water and fill as when making a model. As soon as the plaster is hard soften the compound and remove it, and proceed as the case requires.—*Items.*

Quinine as an Application to Wounds.—In *Nouveaux remèdes* for April 8th there is mentioned an article by Dr. Alföldi, published in the *Pester medicinisch-chirurgische Presse*, and summarized in the February number of the *Therapeutische Monatshefte*, who is convinced that a 1 per cent. solution of quinine sulphate is a more rapid detergent and cicatrizing in cases of infected wounds than either corrosive sublimate or iodoform. He adds that wounds that are free from infection also heal with astonishing rapidity under the use of quinine applications.

Necrosis Phosphorica of the Jaws.—Bogdanik, of Siata, gives the details of four cases of phosphoric necrosis, in which he removed the affected jaws. In three of these the results were excellent; in one case the disease re-appeared and the patient died during the operation of removal of the necrotic bones. Like Wegner, the author regards necrosis of the jaws as due to phosphorus fumes, and states that it begins as an ossifying periostitis, and ends by death of the bone; in one case only Bogdanik found primary necrotic process of the bone, the periosteum being intact. He concludes that early resection of the entire jaw yields the best results and prevents extensive necrosis.—*Przegląd lekarski*.

Hardy (C. S.) on Making Useful Exploring Needles.—An almost invaluable thing I have found for making explorations and examinations around the mouth, is to take a package of Sharp's No. 4 needles, and by the aid of an alcohol lamp and a pair of pliers they can be bent into any conceivable shape, so as to reach all points around or between the teeth. (The reason I say Sharp's No. 4 needles is because they appear to me to be the most convenient size.) If a suitable point has not been made previous to an examination, that will reach the desired spot, it is only the work of a moment to construct one just the shape desired. The said points can be turned at any angle, and made so fine that they will penetrate almost the finest space and catch in the finest cavity, and by the use of a small file the large ends may be filed rough, so that they will fit and hold firmly in the ordinary nerve broach holder. The heating takes the temper out of the needles, rendering them quite tough. They are inexpensive, and you have any shape of exploring point desired.—*Items*.

The Eyes and the Teeth.—In spite of scepticism on the part of some medical men, dentists are inclined to believe that eye trouble is not unfrequently dependent upon, and not merely associated with, some tooth lesion. A case published by Dr. Sous, of Bordeaux, would seem to afford additional evidence on this point, although, of course, it might be argued that a neurotic element would explain the symptoms. A young girl of twenty noticed her right eye failing for three weeks. There was no sign externally of any inflammatory condition, but ophthalmoscopic examination showed choroiditis, without any definite cause. The patient, however, had had a right upper molar recently stopped. It was painful, and upon pressure pain was felt in the right eye. She refused to have the tooth extracted, but the filling was removed, with the result that the eye symptoms disappeared. When the tooth was again stopped pain in the eye returned in two days, and the treatment was repeated with the same result. This state of things would appear to point to the fact that mere coincidence did not account for the ocular symptoms.—*British Journal*.

Browne (W. G.) on Making a Partial Plate or Bridgework directly on the Plaster Model, without the use of Dies.—The six anterior teeth were the only ones remaining in the upper jaw. They were so badly worn down that Richmond crowns were placed on the four incisors. Gold crowns were placed on the cuspids. Over each of these was telescoped a crown, forming part of a saddle bridge, supporting the bicuspids and molars, from teeth on each side. The two saddles were not connected in the anterior portion of the mouth, but a bar $\frac{1}{4}$ inch wide connected the rear ends of the bridges across the roof of the mouth, leaving the rest of the roof uncovered. The entire piece was constructed of No. 30 gauge pure gold, pressed into shape on the plaster model; the bar and saddles were stiffened with a platinum wire soldered to it, enough solder being flowed over to make an even surface. The teeth were put on with rubber attachments; marble dust was mixed with the plaster for the model. The whole piece constituted a double removable bridge, telescoped over the gold cuspid crowns. The teeth on the saddles antagonized with good lower molars, and the bite was raised in crowning the incisors.—*Items.*

Park (J. W.) on Amblyopia due to Dental Irritation.—The patient complained of headaches, blurred vision, etc. R. E. V.=6—26, L. E. V.=6—6, with correction of ametropia V=6—6 in either eye. However, she returned in a few days reporting rapid failure of vision of right eye; vision was reduced to counting fingers at ten inches. Action of pupil was sluggish; ophthalmoscopic examination revealed nothing to account for the trouble. Diagnosis, however, was made of retro-bulbar optic neuritis, and she was put on potassium iodide treatment. Vision continued to fail. It was suggested by one of the physicians who saw her to examine her teeth, which, being done, it was found that five of her upper teeth on the right side had been filed down level with the gums, and that upon these she was wearing a set of artificial teeth. Four days after the extraction of the stumps of teeth her vision showed an improvement. In less than two months vision was fully restored, and showed no change at a later date.

“This was undoubtedly a case of amblyopia, due to dental irritation of the fifth pair. The pathology of these cases is not definitely known, but is supposed to be due to some vaso-motor disturbances of the retina or centers of vision.”—*Annals of Ophthalmology.*

Stewart (C. M.) on Remedies used in Dentistry.—New discoveries are constantly being made and old remedies discarded, until it becomes quite a problem to the practitioner what to depend upon. Only yesterday, comparatively, iodoform was relied upon as one of the great

mainstays of dentistry, but it has been forced to take a lower position in the scale of dental medicine, and its place will probably be filled, in the near future, by something far better.

It is useless to have a great number of remedies, the action of none of which we thoroughly understand, perhaps, but all being highly recommended they are supposed to be good in almost any emergency, and when the emergency arises the practitioner is at a loss just which one of his valuable medicaments to employ. It would be far better and save a great loss of time, energy and general dissatisfaction, if each one would thoroughly acquaint himself with a limited number of agents, satisfy himself in regard to their efficacy in certain conditions, and he will then have at hand something he can rely upon in time of need when everything else seems to be doubtful and uncertain. Of course this does not altogether prevent the trial of new remedies, but gives one a tried list to fall back upon when an urgent case is presented, which is much more satisfactory than uncertain experimentation all of the time.—*Register*.

The Germicidal Property of Light.—Buchmer and Minch have systematically investigated the influence of light upon bacteria floating in water. Among the microbes studied were the bacilli of typhus and cholera, and various destructive bacteria. In each case it was apparent that light possesses powerful germicidal properties. In water containing ten thousand germs to the cubic centimeter, no living microbes were found after exposure for a single hour to the direct rays of the sun. In another specimen of the same water kept in the dark at the same temperature, for the same length of time, the bacteria were found to be actually increased in number. It is the direct sunlight only that exercises powerful germicidal properties, but the diffused daylight was found to be sufficiently active to reduce the number of bacteria after a few hours' exposure.

The conclusion drawn by the authors is that the purification of natural waters is chiefly effected by the rays of the sun. A practical suggestion based upon the results of these investigations is that sewage should not be turned directly into rivers and other water courses, but should first be exposed for some time in large shallow basins lined with white cement, so as to give time for the destruction of microbes by the action of sunlight.—*Bact. World*.

Kirk (E. C.) on Magnesium Hydrate in Erosion Cases.—A method for locally counteracting the injurious action of acid secretions, especially in erosion cases, and which has given me greater satisfaction than any means which I have hitherto employed, is by the use of a preparation known to the drug trade as Phillip's Milk of Magnesia, which

consists of precipitated magnesium hydrate held in suspension in water. It is to be applied in the same way that lime-water or precipitated chalk is used for the purpose of bringing about an alkaline condition of the oral fluids, by neutralizing the excess of acids present. A teaspoonful of the preparation taken into the mouth and allowed to float around over the teeth coats them with a slight film of alkaline magnesium hydrate, which is sufficiently adherent to protect the tooth surfaces from the acid action for a number of hours. I have tested the reaction of the saliva three hours subsequent to the application, and found it still markedly alkaline. It is probably sufficient to prescribe its use three times daily, after meals, though when used night and morning the action is markedly beneficial in retarding erosion. Its advantage over soda bicarb, chalk, or lime-water is because of its continued action over a considerable time and the film-like alkaline coating which it forms over the surfaces of the teeth.—*Cosmos*.

Steele (W. H.) on Some Useful Hints.—*O. K. Alloy Crowns.*—Sometimes we find badly decayed molar roots that will hardly warrant the expense of a gold crown; such teeth can be made to do good service for years, by the following plan: Prepare the canals as carefully as for any crown; firmly anchor two good platinum posts (with good cement) in the roots, having them long enough so they will extend to within 1-16 inch of the articulating surface of crown. Now fit to the roots a thin platinum band, which should be wide enough on the buccal portion to reach above the posts. Next, before the band is permanently adjusted, solder to it a — shaped bar, just long enough so the cross arm will reach over and embrace the root posts; solder to the inside of the band. If the decay should extend lower in some places than can be covered by the band, it will do no harm, but be sure such places are thoroughly filled with alloy, and in finishing be careful that they are left *perfectly smooth*. When the alloy has set dismiss the patient, with a request to call again; when the crown should be nicely *smoothed, burnished and polished*. This entire operation can be completed at the chair, and such crowns will make strong, serviceable masticators for years.

Cutting Soft Rubber.—It is quited difficult to cut soft, or unvulcanized rubber, as it will stick to the shears. To overcome this trouble, dip the shears or knife in water occasionally. This is equally useful in trimming or sharpening bands or other appliances of soft rubber.—*Dental Tribune*.

Letord (J. S.) on Chloro-Percha as a Dressing in Wounds.—I have found chloro-percha to be an excellent dressing in burns, contused or incised wounds, of not too great a magnitude. A thick solution made of gutta-percha in chloroform, properly applied, will close a wound,

preserve the parts in suitable coaptation, shelter them from contact with air, protect them from foreign agents, whether mechanical or chemical. Keep the surface of the solution of continuity at an even temperature; consequently the parts are kept aseptic, and union by first intention without pain is the result.

Wounds which usually require sutures to bring their margins into apposition, are successfully treated with the solution. It is manifest that the application of this solution to burns will be desirable, and experiments have demonstrated such to be the case. The pain is always almost instantly alleviated in wounds of the gum after extracting.

The application of this styptic and splint, if you please, is both grateful to the patient and pleasant to the surgeon. The socket in the alveolus is filled with a pledget of cotton dipped in the chloro-percha and allowed to remain until it is forced out by the contraction of the tissues. In ordinary open wounds neither suture nor bandages are required; simply apply the chloro-percha and the wounds will heal, not only perfectly and well, but without pain or inflammation.

Fissures of the lips, margins of the eyelids, and fissures of the rectum are markedly benefited and cured by the application of chloro-percha. In extensive wounds of the fingers, when a splint is needed, the continued application of the chloro-percha, one coat after another, until the desired quantity is reached, is all that is necessary. It is splint, bandage and anodyne lotion all in one.—*Extract Dental Review.*

Eschauzier (F.) on the Treatment of Pulpless Teeth.—Reading over many papers that have been written about the "best" methods of disinfecting and filling the canals of pulpless teeth, I notice that they all overlook the most reliable and only way of preparing the tooth before proceeding with any of the methods now in vogue. To disinfect the roots of any tooth, my mode of procedure is first to remove as much of the pulp as possible, and then induce a *complete* desiccation of the canals by means of hot air. This is no easy matter, but it can be accomplished successfully by means of a foot-blower attached to the hot-air syringe, and a little patience. An hour's continuous blowing of hot air into canals is sufficient. This I generally accomplish in two sittings, allowing the patient about twenty minutes' rest between, and sealing in the cavity meanwhile, with gutta-percha, a piece of cotton slightly moistened with absolute alcohol. I follow this with applications of hydronaphthol dissolved in glycerol, and more hot air, in order to *soak* the desiccated dentine with this antiseptic. The canals I pack with cotton saturated with this same substance, and seal with cement. I have had after-trouble in only two cases, within three years, and these were with abscessed teeth that would not take kindly to any treatment, and had to be extracted finally. The

advantage of this method is great saving of time and annoyance to patients by repeated appointments, the operation being completed in the same day that it is undertaken. It seems to make no practical difference if only part of the pulp is removed and the canals imperfectly filled. This fact is no doubt due to the replacement of the fluids contained in the dentine previous to desiccation by the antiseptic used.—*Cosmos*.

Dall (W.) on Retention of Removable Lower Dentures, with Gold Pivots attached thereto, which Enter the Sockets of Extracted Teeth.—The mode of procedure in this method is as follows: Extract the teeth, being very careful not to break the labial or buccal plates of the alveolar process, for if this should happen, you will ultimately have shorter pins than where the process is preserved in its entirety. Next make pivots of gold (pivot wire) a trifle shorter than the roots of the extracted teeth which have been kept for measurement. The following day take the impression, modeling your case in wax, and see that all is right after the bite has been properly adjusted; then add the two gold pins, one on each side where most suitable, that they may enter, not the centre of the sockets, as I said in my first paper, but rather towards the posterior walls of the sockets of two of the extracted teeth—the first bicuspid or canines are the most suitable. The pins should be as long as possible, because if too short they cause irritation, and consequently absorption. Having fixed the pins to the wax denture, again try in the mouth to make sure the pins do not hurt, and that they run parallel to each other: then cut a slit in the model wide enough not to disturb them, fasten them with plaster, and proceed to vulcanize in the ordinary way.

When repairing a denture with pins attached, place a small hickory pin in each of the holes in the jaw. These can easily be removed either by yourself when replacing the denture, or by the patient if it is sent home.

You will notice particularly that absorption does not take place so rapidly when you adopt this method, as it keeps the denture steadily in position, and as you know, wherever there is friction there is always more absorption.—*Extract Jour. Brit. Asso.*

Grove (H. N.) Artificial Nose and Part of Cheek.—This was an interesting case, exhibiting a method of restoring parts which may have been lost by either accident or disease. The patient first visited the Queen's Hospital, Birmingham, in November, 1892, suffering from advanced rodent ulcer of the face, affecting the whole of the nose, part of cheek, and left superior maxilla. The diseased parts were removed by Mr. Bennett May, F.R.C.S., leaving an extensive disfigurement,

which exposed the nares, antrum and floor of orbit. The lip had grown to the gum towards the median line.

In restoring the parts, the first step carried out was the replacement artificially of the missing maxilla, gum and teeth, the general contour of the mouth being by this means restored. The artificial plate was held in place by attaching it to a lower one by strong springs, the lip being kept in the proper circle by vulcanite. This proving satisfactory, the patient was placed in the horizontal position, the nares, antrum and other cavities packed with Gamgee's tissue and the face smeared with olive oil; the parts were then modeled in the usual way in plaster of Paris. The artificial nose was made as follows: some strips of thin sheet wax were placed on the plaster cast of face, in order to form the centripetal flange at the base and perimeter of the wax nose. A person with a nose exactly in shape and size suitable for imitation and adaptation was next selected, the natural nose being modeled in plaster and reproduced in bees' wax. The nose and cheek were then properly adjusted to the face and reproduced in plaster, dried and steamed, metal dies being made from them in the usual way. Dental alloy No. 4 was swaged to make the nose and cheek. When completed the flanges of the artificial nose and cheek were smeared with gum mastic dissolved in absolute alcohol, and thus securely fastened to the face; they were subsequently painted in oils, violet powder being dusted over the surface to remove the glaze. —*Jour. Brit. D. Assn.*

• **Newkirk (Garrett) on Soldering Without Investment.**—I observe in the article by Dr. Essig, in the April number of the *Dental Cosmos*, that he speaks of investing bands for the purpose of soldering thereon hooks and short tubes. With me there is a much easier and simpler plan. I join all bands in the making with high-grade solder—twenty or twenty-two carat. To attach a hook or tube to a band, first hold the latter with a pair of moderately thick pliers at the point of union. That this may be kept below melting point and from danger of unjointing, place a little flux and eighteen-carat (or lower) solder on the spot where attachment is to be made, and melt with a fine flame of the blow-pipe. If a bit of tubing is to be placed, take a piece of wire six or eight inches long, or any slender instrument the point of which will fit within, having this covered with a thin coating of a thin mixture of whiting (or rouge) with water, to prevent a flow of solder inside the tube, or possible sticking to the wire or point which we are to use as a holder in making the attachment. Now, with a reasonably steady hand, holding the band as before with pliers, the tube, fluxed on the joint side, may be quickly and accurately fastened to the band over a small gas flame; a piece of wire may be attached in the same manner, leaving it long enough to serve

for its own handle, and cutting off to proper length after soldering, or the hook may be held with jeweler's fine pliers.

Another method, and a good one, is to punch a hole in the band just large enough for the close insertion of the end of the wire, which should be fluxed, when it may be securely fastened with a bit of solder. This is an excellent way to attach screws of the "Angle" jackscrew sort.

Speaking of this reminds me that the so-called "pipes" of the "Angle set" are identical with those kept in stock by the wholesale jewelers under the name of "joint wire," in three or more sizes, and sold at about a cent an inch, German silver. The large size is available for jackscrew and traction purposes, with No. 18 gauge wire screws; the smaller for use in connection with spring wire for rotating teeth in mal-tort. This "joint wire" is also available for tubular posts in crown-work,—being very strong and made with absolute accuracy.—*Cosmos*.

Baldwin (H.) on Application of a Logan Crown to a Lower Root.—Mr. Baldwin fixed a Logan crown to a first left lower bicuspid root. He said that for æsthetic purposes it was important for a lower bicuspid crown to be of all porcelain, or at any rate to have a porcelain top. Richmond crowns, or "signet-ring" crowns, were very suitable for upper teeth, because, in the case of upper teeth, only the outside showed as a rule, but in the lower jaw the case was different, as the tops of the teeth showed more than the outsides. Therefore he preferred a Logan crown for a lower bicuspid root when the bite was not too shallow and the root was good. After having trimmed the root and enlarged the canal suitably with tapering reamers, he roughened it inside with a tapering cross cut bur. He then ground the crown to fit the edges of the root and to just clear the bite, and fixed the crown with base-plate gutta percha, using a mixture of eucalyptus oil, chloroform and resin inside the root as a means of causing the gutta percha to stick to the root and become specially soft under the influence of the heat used. For making a hole into the gutta percha in the root he used an instrument consisting of a Logan pin soldered onto an excavator handle. For keeping the root dry during the packing of the gutta percha and the insertion of the crown he used four pads of Japanese bibulous paper, one under each cheek and one on each side of the gum and root operated upon. While the gutta percha was still soft the patient was caused to bite hard upon a fifth pad of bibulous paper placed over the crown. The excess which squeezed out was then trimmed away. He thought gutta percha was the best thing for fixing nearly all sorts of crowns, as it held them very securely, allowed them to be removed if required, and prevented decay in the root better than anything else, but he did not recommend temporary gutta percha, as it was too soft. Mr. Baldwin also showed some Bonwill crowns

which he had made out of Ash's tube teeth by drilling the tube out larger, and also drilling a recess in each end by means of diamond drills. He preferred these crowns to those made by White's, because they were stronger, and could be ground on the surface and polished if necessary. He used them in lower bicuspid cases, chiefly when the root was bad and decayed below the gum. In these cases he first fixed the pin with amalgam, and afterwards fixed the Bonwill crown with amalgam also.—*Jour. British Asso.*

Hooten (I.) on A New Method of Moulding and Working Continuous Gum.—After glancing at the older methods of supplying the deficiencies of teeth, Mr. Hooten said he had been engaged for years at great personal labor in elaborating a system to make porcelain teeth on gum substance which would neither shrink nor crack in burning. His labors had resulted in the finding of such a "body" which fulfilled these requirements. The appliance which he had to describe was designed with the object of moulding the teeth and gum substance in a manner which would be universally applicable to any form of teeth or gum, and with a series of matrices of different types of teeth it was possible to adapt the one to the other by one process. The process was applicable alike to gold plates and to vulcanite, without need of platinum; thus partial or complete sets could be moulded as easily as vulcanite. Mr. Hooten then described the process: (1) The moulds or matrices are made by mounting sets of teeth of various types and sizes in wax; seven or eight types being sufficient for ordinary work. These wax patterns are not fitted to any gum outline, but are contoured to the form of an upper or lower maxilla, and are made flat on what would be the gum surface; in other respects they are exactly what a set of artificial teeth would be. These form the "male" part of the mould, which is cast in plaster of Paris in two parts. These are trimmed into shape so as to be reproduced in brass or gun metal, so as to be clamped together by pins, and on the upper surface a metal plate is cast like the lid of a vulcanizing flask, except that it has three counter-sunk holes and a central hole through which a screw passes, and on this a winged nut works which clamps the whole. This apparatus is thus worked: a universal articulator is prepared, and into it is fixed a zinc model of the case to be treated; on this is placed a wax bite of the dimensions of the required plate. A soft brass plate is adapted around outside of this, being moulded to take the external outline. The wax bite is removed and a wax counterpart of the inside of the brass mould made. This is adapted to the zinc model by heating. Before the zinc is heated the articulator is removed, but it has to be replaced before the wax counterpart is run down. The wax bite is thus outlined with teeth and gums, but with its gum surface the

counterpart of the zinc model, and it is then returned to the brass mould, and fusible metal melted and poured in through one of the three holes in the lid which are counter-sunk. The matrix is quickly opened by withdrawing the pin, and the wax removed. It is necessary that parallel holes be drilled into the lower part of the matrix for the pins. Slits are also sawed in the mould behind the canines on each side, so that strips of thin brass can be slipped in to divide the mould into three parts. Into the pin holes are inserted pieces of steel knitting pins of pivot wire gauge, and on them are fitted platinum tubes wherewith to line the pin holes in the gum blocks. A plate of copper is put under the matrix to prevent dropping out of the pins. The mould is now clamped, with the exception of the lid, the "body" being packed in moist, then the lid is added and hammered down and screwed home. The mould is heated over gas until the fusible metal runs out; next, the outer part of the mould and the lid are removed, and the blocks trimmed and removed; the gum surface is then painted and the teeth tinted. The blocks having been dried for half an hour, are then placed in the muffle, which should not be closed until the oil and starch are driven off. In abstract it is not possible to give more than an outline of Mr. Hooten's interesting communication, which should be read *in extenso* in order to do it full justice—*Extract Jour. Brit. Asso.*

Headridge (D.) on an Improved Method of Making and Attaching Artificial Vela.—By this method is obtained a simple and highly satisfactory attachment of artificial vela to vulcanite dentures or for the matter of that, the novel part of the appliance can be made on a gold or alloy plate. The velum carefully moulded to the palate, restores the functions of that organ in as perfect a manner as possible, and dispenses by its own elasticity with any necessity for a posterior flap. And the attachment whilst allowing for its easy removal by the patient (the adjustment being of no greater difficulty than the buttoning of a collar stud), nevertheless gives freedom from the lodgment of food or secretions.

An accurate plaster impression, preferably with the portions of the soft palate not too dependent, and extending as far back as possible, having been obtained, a model is made in which the depression of the cleft is filled by wax to its lingual borders so as to produce an unbroken surface to the vault, yet in no way effacing the individual properties of the impression. A zinc die is now made and a small piece of plate swaged. This will form ultimately a portion of the denture in contact with the mucous membrane, and on its lingual surface will serve for the attachment of the velum. This plate should extend laterally to within a half-inch or so from the teeth and posteriorly its edge will depend upon that of the vulcanite base. This again will in some degree depend on

the condition of the surrounding tissue; if the soft tissue comes well forward, as is frequently the case in congenital cases, it will not be wise to carry the hard plate as far back as under ordinary circumstances it would be carried. On the model with this piece of plate *in situ*, the velum is now moulded in wax of such a thickness as that the elasticity of the rubber will bear its own strain. After having been smoothly finished it is tried in the mouth to see that it will not impinge against the upper part of the pharynx when the superior constrictor bulges forward in deglutition, and that it will glide freely on the pillars of the fauces. Altering to meet these desiderata it is again carefully trimmed, and it, with the plate, is tacked on by hard wax to the model, whilst another zinc casting is obtained. Removing the plate a hole is punched just within its posterior border in the middle line, and through this hole a wire is passed through the wax model of the velum which has been accurately reapplied. After detaching the velum from the plate, the wire should be left extending about $\frac{1}{4}$ of an inch on both surfaces of the wax. A two-part plaster mould is now made dividing along the border line of the velum. These are duplicated in type metal, the pin being inserted into the depression in each plaster mould when casting, and left in the sand whilst pouring. The result is that we obtain moulds whereby when vulcanizing with the insertion of an iron wire we retain a hole through the velum. These type metal moulds it is needless to say should be most carefully fitted and the surfaces well polished, and the artificial vela rubber vulcanized as specially directed.

To resume the making of the metal attachment on the second zinc model. A rim of plate is carefully adapted to the base-plate projecting over the edge of the velum not more than $\frac{1}{8}$ of an inch. After finishing up, it is soldered, as also are little tags of metal between the two free edges of the plates, or rather slightly within these borders, to hold the vulcapite. Into the hole previously punched a pin with a head at the height of the thickness of the velum is soldered. The teeth being now mounted with the metal attachment *in situ*, the plate is vulcanized. When polished, the artificial velum is by its hole slipped over the pin's head, and its edges tucked under the projecting rim now continuous with the vulcanite, and all is ready for insertion in the patient's mouth.—*Extract Brit. Journal.*

Sarrazin (J. J.) on Homœopathy in Dental Practice.—I will soon depict a few pathological conditions, and indicate their treatment, this may vary somewhat, according to circumstances.

In order not to confuse my subject I will consider only one condition of the organs we are accustomed to deal with, periostitis and alveolar abscess acute and chronic, leaving entirely aside all other diseases of the

oral cavity, and even here some little study is necessary before any amount of accuracy in prescribing can be obtained. Right here already a list of remedies suggest themselves, ready to puzzle the beginner, and from which we must select with great care and precision, considering at times even the cause of the trouble if ascertainable, and the constitution and condition of the patient. Aconitum, mercurius dulcamara, belladonna, arnica, chammomilla, calcarea carbonica fluorica or phosphorica, acidum, fluoricum, sulphur, hepar sulphur and silicea would be a few of those most likely to be called into active service in fighting different forms of alveolar abscess and its after results when the patient has not been seen in time. Taking periostitis as a starting point a few of the above may be selected from. Mercurius, if soreness upon pressure with or without spongy inflammation of the gums, is manifested, particularly if symptoms of cold in the head and in the throat concur, and we ascertain that the patient has taken cold. This, provided however, that the patient is not suffering from the drug effects of mercurial preparations, in which case hepar sulphur being the antidote of mercurius, should be given. Aconitum may be used with advantage in periostitis if there is much inflammation, some fever, cold has been taken, and relief is procured by cold applications. If the trouble can be ascribed to the effects of having been wet, and there is at the same time some pulpitis, dulcamara will be found valuable. Belladonna will apply in periostitis where inflammation is marked, and headache in the front part of the cranium is manifested. Arnica is clearly indicated if the cause of the trouble is previous concussion or mechanical pressure in any manner chammomilla, with soreness and pulsating pain, has the sensory symptom of elongation of the tooth very marked; warm applications relieve. Any two of the above mentioned remedies may be alternated if so indicated. In this incipient form of periostitis a medium dilution, say the 30th, is preferable, particularly if the patient uses neither coffee nor tobacco in any quantity, and if total abstention from these nervous stimulants can be insured, so much the better, otherwise, lower dilutions, the 6th, for instance, can be displayed. This much said about incipency, let us now pass to a better defined stage. We have considered periostitis singly, whether due to mechanical irritation, cold or incipient abscess. In the latter case, we may, instead of resolution, have a tendency towards pus formation, characterized by the symptoms of heat, painful pulsation, swelling, redness, soreness and elongation still better marked than in the conditions above described. The remedy is now hepar sulphur, unless the patient is syphilitic or shows syphilitic heredity, in which case mercurius vivus should be given the preference, except the case is already saturated with mercury. Mercurius if chosen for the reasons above stated will usually

tend towards resolution. Hepar sulphur may do likewise, or may hasten suppuration in a surprising degree. In neither case will there be much suffering. Mercurius and hepar sulphur being antidotes should not be alternated, of course. Low dilutions of hepar sulph, the 6th for instance, will tend toward suppuration; medium, like the 30th, will on the other hand tend toward resolution. In making choice of the dilution, should be well observed, as previously stated, the patient's mode of life and habits. The next stage of alveolar abscess is that in which the formation of pus, however slight, has already started in. This is characterized by the peculiar feeling of the parts well known to all dental practitioners, less pulsation, swelling, tenderness, bloated appearance. Silicea should be exhibited and prescribed at a high potency in preference if the habits of the patient allow it. This concludes the treatment of acute conditions, taken at any stage of the trouble, and brought to its termination, and I would here state that cases so treated will not need to be followed farther into those chronic phases which will now be considered. Of course, mechanical means, such as affording free exit to the gases of decomposed pulp matter, and washing root canals with injections of hydrogen peroxide should be at all times resorted to. I always prefer hydrogen peroxide to other disinfectants, because of its detergent qualities combined with medicinal inertness which does not imperil the action of the remedies employed. For the sake of clearness I will now describe some of the chronic conditions which may result from alveolar abscess, under the headings of those remedies which may there apply:

Calcareo, Carbonica or Phosphorica.—Looseness of the tooth caused by absorption of the alveolus.

Calcareo Fluorica.—The same conditions as above; the root being somewhat of a foreign substance, owing either to lack of vitality of its pericementum or to exposure by absorption at its apex of some of the enclosed filling material.

Acidum Fluoricum.—Lack of life and adhesion of the roots caused by the presence of foreign matter at the apex or partial death of the lining membrane; fistula, discharge of pus therefrom and necrosis.

Silicea.—Looseness of the tooth, fistula, discharge of pus.

Sulphur.—Well adapted to most cases in the beginning of treatment in chronic cases to put the system in a better condition to react. For this purpose, should be prescribed at a high potency in preference, about the 200th.

This, gentlemen, is the homœopathic treatment which will usually apply to ordinary cases of alveolar abscess in its different stages. In order not to have this article too long and complicated, I have purposely avoided any allusion to other diseases of the oral cavity and adjoining

parts; pulpitis, gingivitis, recession, resorption, pyorrhœa, facial neuralgia and the like. For all such cases, as well as for those pathological conditions here depicted, I will at any time be happy to give suggestions and information in regard to the remedy best adapted, and thereby facilitate the trial of a system of treatment, which I am convinced, would if more extensively used prove a boon both to ourselves and patients.—*Extract Sou. D. Jour.*

EDITOR'S NOTES.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

SINCE our last issue, the long looked for Columbian Congress has convened and adjourned, and will now be recorded as the largest gathering of dentists that the world has ever seen. The attendance was good, but hardly as large as anticipated; yet, with the present financial condition, more could hardly have been expected. We were disappointed, however, in not seeing more Ohio men in attendance. Of those registered with the treasurer, 48 only were from Ohio and a few of these were not in attendance. Cincinnati had 14 representatives; Cleveland, 9; Dayton, 4; Columbus, 3; and Toledo, 2; thus leaving 16 representatives from the smaller cities and towns, and yet Ohio contains over 1,000 dentists. We can but say that those who did not attend the Congress missed the greatest dental event of their lives, for it is doubtful if the like will again occur, in this generation at least.

Of the character of the work done at the meetings our readers can judge from the excellent report of the proceedings now being prepared for the OHIO JOURNAL, the beginning of which we present in this issue.

We shall have more to say about the Congress next month.

NEW PUBLICATIONS.

LISTERINE is an ornate pamphlet, by the Lambert Pharmacal Co., St. Louis, Mo., giving the composition and medical properties and describing the numerous uses of Listerine, of which it treats, not only as one of the most agreeable of deodorants, but as a topical application—in many cases—actively disinfectant. Lister-

ine is particularly commendable and well adapted for use in diseases of the mouth, throat and nasal cavities. Dr. Seiler says that it speedily destroys the stench of ozæna when properly diluted and employed as a spray. He directs its use to be preceded by preliminary cleansing with bicarbonate of soda. It is also commendable, properly diluted, as an application to ill-conditioned ulcers, mucous patches, contagious catarrhal affections, and as a dressing for suppurative wounds. It is at once one of the most agreeable as well as most efficient of all mouth washes and gárgles, and has a deservedly extensive use among dentists. As an internal remedy also there are many indications for its use. For particular details of its extensive application in medicine, surgery, obstetrics and dentistry, the reader should procure the book.

BOOKS RECEIVED.

Clifford's Manual of Recitations in Materia Medica, Pharmacy and Therapeutics. By. E. L. Clifford, D.D.S. Chicago: Published by the author.

BRIEFS.

— DR. R. R. FREEMAN inscribes the following on his bill-heads: "Clean teeth don't decay;" and if complaint is made of the amount of the bill he refers to the prime cause.

— FOR an excellent varnish, procure a piece of clear amber, scrape or powder it, dissolve in Squibb's chloroform, which will take some time, add a little absolute alcohol to delay evaporation, and you have a varnish so hard that it will resist almost anything.—*C. F. Ives, Inter.*

— DR. KILLIAN treats root canals with iodoform vapor, by filling the root with iodoform and passing a heated platinum instrument into it, which, he says, vaporizes the iodoform and this acts as a disinfectant. Apply the platinum several times until all iodoform is vaporized, then fill root canal.

— DULL or improper instruments are cause for complaint. The idea of some that it will be taken as evidence of skill to have but few instruments, and the boast that "I can use anything," is nonsense; the more skilful the dentist, the keener,

brighter and more delicate, varied and appropriate will be his instruments.—*Items.*

— DR. H. C. BOYD uses the English pinless teeth for rubber work, running gold pins through the holes in the teeth, allowing the ends to project far enough to solder a continuous band to the ends of the pins, inverting in plaster and asbestos for soldering. The teeth are then waxed up and the piece inverted well vulcanized as usual, making a strong but not cumbersome piece.—*Items.*

— IN deep cavities where pulps are healthy, but nearly exposed, after thoroughly excavating, washing, and sterilizing with antiseptics and warm air, I give them a good coating of white resin dissolved in chloroform, then evaporate the latter with warm air and partly fill with oxyphosphate of zinc. A cap of paper or metallic cap may also be used where conditions seem to require it.—*C. E. Francis.*

— A new anti-neuralgia is reported in *Deutsche Medicinische Zeitung*. The name given the preparation is *aguthin*. It is tasteless, insoluble in water, soluble in alcohol and ether. Doses of one half gramme, three times a-day, are said to produce excellent results in allaying the pains of neuralgia and rheumatism. A distinct advantage claimed for the drug is that long-continued use does not produce any evil effect.

— MELT a drop of the sticky wax known as model cement on to the broken end of a chloride of ethel tube, and then plaster it down with a warm spatula. Repeat this three or four times. This probably forces some of the wax into the tube, for it is necessary to again break it when the contents are required for use. Simply melting the wax on to the end will not do, and the rubber caps are of very little use.”—*Jour. B. D. Asso.*

— From a personal stand-point I think the only fit crown to use is one with a band on it. I have seen so many fractured roots and so much decomposition of the end of the root from loose joints that I cannot but feel that the slightest play between the end of the crown and the root is fatal to the success of the operation. It does not matter how slight the movement may be, you are bound to have decomposition where it exists, and strange as it may seem, it will follow the pin up into the root.—*Dr. Stanton.*

— If you are using a Glidden drill it can be remembered that all Glidden drills are of the same length; so if you have broken off one, take the broken shaft, compare it with a perfect one, and you can discover how much of the drill is in the canal. Then if you take the broken drill and lay it on the tooth, you can get an idea of just how far it went into the root. If it is very far up, you may as well leave it. If not far up, you can generally drill past and fill beyond it.—*R. Ottolengui.*

— A gentleman who was in Madrid for a number of years—Dr. Thomas—devised a plan for destroying pulps that seems so admirable that I want to tell it to you. He puts his arsenic, morphine, and cinnamon together, and having chopped up finely a quantity of cotton, mixes the medicament with it, and fills a bottle with the combination. It is ready for use whenever required, and is very comforting and quieting if the pulp is in a state of irritation. This preparation will not ooze out on the gum. I have been using it for five or six years.—*E. A. Bogue, Inter.*

— IN regulating cases I strongly object to the idea that patients should attend to their own cases. How are patients to understand more about the nature of the work to be done than we do, who have spent so much time upon the subject. My experience is that if you leave a patient even for a day something happens, and whether you use steel or copper wire there is always the element of ignorance which enters against your knowledge, so that I would strongly advocate the profession looking at the treatment of irregular teeth as a serious matter, not to be entered into lightly.—*W. B. Pearsall.*

— HARDLY any cement filling in the root of a tooth, with an apical foramen large enough to admit fluids, will remain longer than a year or two without absorbing enough poisonous product of decomposition to give off a perceptible odor. Of the two, the chloride is the least durable, though I do not consider either at all a desirable material for root filling, unless the apical foramen has been well sealed with some more indestructible material before its insertion. A tooth that is filled with it may be expected to give trouble sooner or later, and it must soon be discarded altogether and give place to some more durable and desirable material.—*Extract Ed. Sou. Jour.*

— DR. ARKÖVY says formanilid lessens the sensitiveness from touch with forceps. It is useful in chronic peridontitis and total necrosis, also in mouth operations, where the soft parts are concerned. In very sensitive patients, where tannin, iodoform or cocain were used, which showed some unpleasant side effects, formanilid showed no such action. A three per cent. solution, or mixture with pulv. gummis.arabici or mastics, is recommended in taking impressions and habituating to dentures. In its chemical composition it is nearest to antilibrin, and promises to become a useful local anesthetic in dentistry.

— WHEN the tartar has been removed with instruments as thoroughly as you can, the teeth should then be polished carefully with strips of cane; or preferably cotton wood, which has a fine fibre, and with wood points or leather buffs on the dental engine loaded with fine pumice powder. For this purpose some fine pumice with peroxide of hydrogen, glycerine and eau de cologne should be kept in a large-necked bottle with glass stopper, as it will be found both better for use and more agreeable for your patient than plain pumice, the glycerine making the powder stick to its work better than in a dry form.—*W. H. Woodruff.*

— I think I have improved the quality of my cement fillings by the addition of a little of the fine dust we get out of our amalgam—not the coarse filings, but there is always in every package of amalgam, some more than others, a fine dust, which you will find in the bottom of the package. If you will use just a little of that made into a powder before you mix it, then mix your cement and apply it, I think you will have a surface that will stand mastication better than you will with cement alone. The color is a little darker, but you do not need to use much of it. The minute particles of metal that are held in the face of the cement prevent the cement from disintegrating and cupping out as it does in most instances.—*L. C. Wasson.*

OUR AFTERMATH.

DIED, August 1st, 1893, at his home in St. Louis, Mo., Dr. Henry Fisher, one of the most prominent dentists of that city.

LONG. projecting teeth are often found in persons of good disposition, but rarely of marked ability, says the St. Louis *Globe-Democrat*.

THE CZAR—A horrible thought strikes me!

The Lord High Executioner—What is that, your majesty?

The Czar—If that dentist was a Nihilist he may have filled my teeth with dynamite. Then the first time I bite hard I shall blow the top of my head off.—*Puck*.

MRS. GRACE MORRISON HUNT, wife of Dr. Geo. E. Hunt, of Indianapolis, Ind., died after a brief illness, at their home in Indianapolis, on August 13th, 1893. Dr. Hunt was married only last November, and the untimely death of his estimable wife will be deeply regretted by all. The JOURNAL extends sincere sympathy to Dr. H. in his bereavement.

AMATEUR DENTISTRY.—Mr. Ackery remarked that it would seem that amateur dentistry was less rare than might be imagined. Some three or four weeks previously a man came to St. Bartholomew's Hospital to have some stumps removed. He said he was going to have some artificial teeth, and was going to make them himself. He had taken a cast of his mouth, reproduced it in plaster, made a mould in sand, and from that made an iron die. He was going to make a plate in silver and wanted to know where he could get the artificial teeth.—*Jour. Brit. Asso.*

DON'T COUNT FOR MUCH.—A request for a medical license, based upon one term's attendance and graduation from the Northwestern College of St. Joseph and attendance upon two courses of lectures in a dental college, was denied at a recent meeting of the Missouri Board of Health, and the following resolution adopted as a future rule of the board: *Resolved*, That the requirements made by this board (for a medical college in good standing) do not contemplate the attendance upon a course or courses in dental colleges or schools of pharmacy shall be considered equivalent to an attendance of a course of lectures at a medical college.

TO BE SUCCESSFUL, a man must be a gentleman; and to be a gentleman, a man must know how. It would sometimes seem, in this age of push and hurry, of rush and worry; in this age, when the prime pursuit of most men centers itself in a struggle for the deceptive dollar, that the art of being a gentleman is almost a lost art. And yet true gentlemanliness was never more appreciated than it is to-day, and the rewards for being a gentleman were never greater. Especially do the environments of a practitioner of dentistry call for gentlemanly qualities. A dentist should be cleanly and careful; he should be tasty and temperate. He should be perfectly poised, pure-minded and polite. He should preserve his honor as if it were the most precious flower in the human heart. He should never forget that one of his chief functions as a dentist is to lend dignity to his calling; one of his chief duties as a man to elevate in however small a degree, the general tone of humanity. If he has in his mind these qualities, in his heart these sentiments, he is possessed of at least some of the main elements of true success.—*C. N. Johnson, in Cosmos*.

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CONTRIBUTIONS.

THE FIRST DENTITION.*

GEORGE EDWIN HUNT, M.D., D.D.S., INDIANAPOLIS, IND.

IN an article on "Diagnosis," by James Finlayson, M.D.,† the following assertion is made :

"If the beginner is ever to make any progress in the diagnosis and treatment of the diseases of infancy, he must take up the attitude of refusing to believe that any child is ever *seriously ill* from teething."

The balance of the article is mainly devoted to bolstering up this statement. The author declares that all of the ills heretofore ascribed to abnormal dentition are really due to perversions of other functions, and that under no circumstances does relief of symptoms or of conditions result from local interference during the difficult eruption of the deciduous teeth. Such an article written by a man of Dr. Finlayson's prominence and appearing in a work generally acknowledged as a standard text-book on diseases of children, should not pass unchallenged.

It is unfortunate that the author was not more intimately acquainted with the anatomy of the parts about which he wrote

* Read before the Marion County Medical Society, Indianapolis, Ind.

† Keating's Cyclopædia of Diseases of Children, page 78.

The editor and publishers are not responsible for the views of authors of papers published in the OHIO DENTAL JOURNAL, nor for any claims that may be made by them.

this portion of his article. A better knowledge of the formation and eruption of the deciduous teeth would have saved him from an exhibition of ignorance inexcusable in this day and age when the literature on the subject is so extensive and so conclusive. That section of the article referring to dentition is so permeated with a perversion of facts, so thoroughly injected with a misapprehension of anatomical relations, that it is difficult to select the portion of it most worthy of confutation.

The author labors under the impression that the reputed cause of all troubles ascribed to dentition is irritation of the overlying gum tissue by pressure of the coming tooth, and to that alone. Nothing could be more erroneous. The gum consists of dense fibrous tissue covered by a mucous membrane, each of but slight sensibility normally and neither calculated to produce graver constitutional disturbances than sleeplessness, restlessness or perhaps slight fever even when inflamed, although these disorders, slight at first, might reasonably be expected to set up a more serious train of phenomena if long continued.

J. W. White, M.D., D.D.S., says: *

"Many who admit that dentition may exercise an influence on the etiology of the diseases of infancy assume that the explanation of deranged action is to be found only in the direct pressure of the advancing tooth upon the fibrous tissue, which fact is always to be determined by local signs. It is doubtless true that there is some such external evidence, but it does not follow *because there is no local manifestation that therefore dental evolution can have no relation to a pathological condition.*" †

Hyperemia of the gums is perhaps generally caused by the eruption of the teeth proceeding more rapidly than the absorption of their integumental covering and the undue pressure thus exerted may occasion trouble by the irritation of the nerves of the gum tissue, manifested locally by soreness, tumefaction, redness or ulceration; systemically by irritability, sleeplessness, fever, etc.

But the direct pressure of the advancing tooth upon the fibrous integument is not the only nor the principal factor in disturbance of equilibrium in pathological dentition. The most serious complications are, it is reasonable to suppose, caused by

* Litch's American System of Dentistry, Vol. III. page 326.

† Italics mine. G. E. H.

the resistance of the gums and consequent pressure on the nervous and vascular supply of the pulp, giving rise to severe and unremitting pain—a true toothache, comparable only to that exquisite torture which is experienced in after life from an exposed and irritated pulp. The condition when a tooth is thus situated is not unlike that which is found in whitlow—vascular and sensitive tissues bound down by unyielding coverings. If such a perversion of this physiological process is possible there can be no question as to the extent of the mischief that may result—an irritability of the general system which finds expression in loss of appetite, sleeplessness, nausea, thirst, fever, diorrhea, or constipation, convulsions, paralysis, or other serious lesions; many of which, as strabismus or epilepsy, remain through life.

It is not surprising that those who hold the theory generally assumed and taught that the direct pressure of the advancing tooth upon the fibrous tissue is the explanation of all symptoms attributable to pathological dentition, should underestimate the distress and danger that may occur. But the severity of the disturbance frequently witnessed suggests a more serious complication and a graver diagnosis. It must be remembered that at the period of eruption the roots of the teeth are incomplete. Instead of the conical termination and minute foramen which characterize a perfected tooth, the aperture is nearly as large as the root itself and thus, when the sensitive pulp, made up of connective tissue, bloodvessels and nerves, is in a condition of irritation because of the morbid activity of the process of dentition—augmented vascular and nervous action—there may be produced a hyperemia sufficient possibly to cause a protrusion of the mass from the incomplete aperture of the root, giving abundant cause for extreme constitutional disturbance. If, in the adult, the irritation of a dental nerve may give rise to otalgia, otorrhea, deafness, amaurosis, hemicrania, neuralgia, hysteria, chorea, epilepsy, tetanus, etc., it is surely not only possible but highly probable that a like irritation may be the occasion of grave and even fatal disorders in the infant.”

C. N. Peirce, D.D.S., in a paper* on the calcification of the temporary teeth, says:

“In close proximity to the sharp and irregular edges of the calcifying extremity of each partial or complete tooth crown lies

* Dental Cosmos, August, 1881.

the vascular papilla—the primitive tooth pulp—and any want of correspondence between the absorption of the overlying gum at the coronal extremity and the deposition of solid matter at the calcifying or papillary extremity, must produce by this retarding influence an irritation limited in its extent by the number of teeth advancing, the duration of the cause and the ramification of the trifacial or fifth pair of nerves and the extent of the sympathetic disturbances to which they are liable.”

Nearly all authors of textbooks on diseases of children, ignore the dental pulp as a possible agent in infantile disturbances. That there should be any dental factor in the case except the comparatively unimportant one of irritated gum tissue, does not seem to enter into their calculations in the slightest degree, as witness the following from Dr. Finlayson :

“Conjunctivitis is said now and then to occur on the same side on which the teeth are protruding. More than likely this is a coincidence. But the opinion is advanced that it may be the result of dental irritation,* the extension of the irritation to the conjunctiva being favored by the proximity of the apices of the fangs of the canines and first molar to the floor of the orbit—a rather unsatisfactory explanation.”

Rather so, it must be admitted. But even if we grant that an inflammation from the resistance of a tough, fibrous mass over the crown of an unerupted deciduous cuspid—“canine” is objectionable—is incapable of extension by contiguity from the tooth pulp to the conjunctiva through the osseous and other connective tissue separating them, that such inflammation may be produced reflexly through the anterior superior dental branch of the superior maxillary nerve and the inferior division of the lachrymal branch of the ophthalmic nerve, both taking their rise in the Gasserian ganglion, and the former giving off branches to the superior cuspids while the latter is distributed to the conjunctiva, is not only possible, but, reasoning from analogy, is highly probable.

Later on Dr. Finlayson says :

“Since the first dentition has been considered the source of so much local and constitutional trouble during the first two years of life, it is only natural that in the second dentition should be sought an explanation of many of the disturbances occurring between the sixth and twenty-first year.”

* Vogel. Diseases of Children, page 110.

Not necessarily. The permanent teeth, except the six molars in each jaw, follow up the path already made by the temporary teeth, which latter are gradually absorbed as the former advance. This absorption is not due to pressure as was the absorption of gum in the case of the deciduous teeth, but is a molecular dissolution.* Then development is slower and better timed from the fifth or sixth year on. Abnormal rapidity of dental evolution seldom occurs in the permanent teeth. When it does we have constitutional manifestations exactly as we had during the eruption of the temporary teeth, modified of course by the better balanced nervous system and increased capacity for physiological resistance to the encroachments of disease.

J. Lewis, Smith, M.D., says:†

“The fact is well established, but often overlooked in practice, that the second dentition occasionally deranges the functions of organs and gives rise to pathological conditions.”

Vaginal discharges, eye and ear troubles, facial neuralgias and stomach disorders are some of the disturbances that have been noted in connection with the eruption of the permanent teeth.

One reason for having fewer and less severe manifestations during childhood and youth, is to be found in the next paragraph of Dr. Finlayson's article—although he did not intend it as such:

“It must be remembered that during the dentition epoch, the whole organism is in a state of active development; that the nervous system has not acquired the stability of equilibrium of the youth or the adult and is therefore extremely susceptible to external impressions, as is evinced in the marked manifestations of disturbed function that are produced by what in the more matured individual would be considered trifling affairs.”

Exactly so. The instability of equilibrium of the nervous system in the infant, coupled with the greater tendency to abnormally rapid eruption of the teeth during this period of excessively active development, is reason enough for finding greater tendency to constitutional troubles of dental origin. A system in a condition to have marked manifestations of disturbed function resulting from trivial external impressions, is doubly likely

* *Tomes' Dental Anatomy*, page 195.

American System of Dentistry, Vol. III., p. 640.

† *Diseases of Infancy and Childhood*, page 685.

to be affected by serious disturbances within the economy itself.

It has been my endeavor in the preceding to call your attention to the fact that severe constitutional disturbances may result from pathological dentition. It cannot be denied that many diseases at this period are in no way connected with the eruption of the teeth, but we may with safety assume that dentition is a possible etiological factor in a number of infantile troubles.

In regard to treatment the mode would seem to be perfectly clear, relief of tension by a properly made incision through the fibrous mass binding down the oncoming tooth crown. Scarification is practically useless. Lancing is the true therapeutic measure where any surgical interference is indicated. On this head, it is natural that Dr. Finlayson, who does not consider dentition a cause of disease, should oppose lancing. He says:

"Gum lancing is not objectionable because of pain, the possibility of severe hemorrhage, injury to the tooth, or any difficulty attending the operation, but because it is an absolutely useless procedure so far as it affects the eruption of the tooth."

In this view, unfortunately, the author is not alone. Dr. F. Forchheimer, in a work recently issued, entitled "Diseases of the Mouth, in Children—Non-Surgical;" writes as follows:

"Convulsions that can be cured by gum lancing, can be cured by the most simple means—lukewarm baths, a mild laxative, a full dose of bromide of potassium; they will get well of themselves if the physician will be wise enough to remove the cause, which must be looked for everywhere else than in the teeth.

Locally the scarification does nothing but let blood; the idea that tension within the sac is relieved is a purely imaginative one. There is no tension within the sac."

Now, aside from the fact that Dr. Forchheimer uses the terms scarification and gum lancing interchangeably, a fact which argues the vagueness of his understanding, his opinion is directly opposed to the preponderance of evidence. Very few physicians in active practice but have seen marked beneficial results from thorough lancing of the gum *where such a procedure was indicated*. Scarification is useless as a permanent relieving measure if more than local disturbance is occurring, because scarification only relieves the congestion existing in the tense inflamed gum; and even for this purpose it is inferior to thorough division of the fibrous tissue. Nothing but lancing down to the crown of the

coming tooth will relieve the pressure on the hyperemic, hyper-sensitive tooth pulp, the source of these graver disorders.

Dr. Forchheimer's personal experience in this line of treatment is limited to one case, by his own admission, and it is in doubt whether he scarified or lanced in this one case, his language being open to either construction; the chances are even that he scarified. He leaves us in doubt also in regard to the disorder from which the child was suffering, but if it was due to pressure on the formative tooth pulp, scarification was useless; if he lanced thoroughly and intelligently and had a negative result, it proved that his diagnosis was in fault and that there had been no undue pressure on the tooth pulp.

Smith cites a case where a child had severe convulsions, which were entirely suspended on the eruption of five deciduous teeth, all of which made their appearance inside of two weeks.

Marshall Hall states that he has generally succeeded in curing the disease by attending to the condition of the gums and digestive organs.

A recent editorial in the *Journal of the American Medical Association*, says:

"A communication from the pen of H. C. Wood, upholding gum lancing and taking issue with the views of Forchheimer on the subject, as detailed in his recent book on "Diseases of the Mouth," has been copied very generally by the medical press of the country. This extensive re-publication may fairly be taken as expressive of a general approval of the position taken by Prof. Wood."

H. C. Wood, in the article referred to, says he "is absolutely sure that he has seen convulsions, sick stomach, great restlessness, fevers and various other functional disturbances in young children immediately cured by the use of the gum lancet, after the failure of various other well directed measures for relief."

M. P. Guersant says:* "Convulsions may manifest themselves under the influence of dentition. This little operation (gum lancing) is expressly indicated if convulsions are produced by the pain."

Who shall decide when doctors disagree?

What is the student in search of light to do? Accept the teaching of Finlayson and Forchheimer, repudiate difficult den-

* Surgical Diseases of Infants and Children From the French,

tition as an etiological factor in infantile disorders and ignore the clinical results experienced by hundreds of practitioners; or use knowledge tempered by reason, and lance—lance with judgment, lance with thoroughness, lance with *understanding*, where the operation is indicated. Lance, not to relieve the congestion in the tense gum tissue, but to relieve pressure on the formative tooth pulp. Lance, not because John Doe or Richard Roe advocate it, but because a knowledge of the anatomy of the parts and of reflex impulses in the economy, aided by a little common sense, teach that lancing is a true therapeutic measure.

DENTAL DOTS.

BY D. V. BEACOCK, D.D.S., BROCKVILLE, CAN.

WE should always remember that some organs may be performing vicarious functions, and that they may be loaded to so near their own limit of endurance that a very little extra emergency, which under ordinary circumstances they would be quite competent to carry or withstand, determine their failure.

A piece of old kid glove is occasionally useful to press the first pieces of gold into a cavity, where it is difficult to make a retaining point.

Take a piece of fine piano wire, flatten by grinding or otherwise about half an inch at one end. Do this without drawing the temper. Twist the flattened end to the left, while held in the vise, with a pair of pliers. You will have as nice a twist drill as you can wish for entering the smallest canals. If carefully made they can scarcely be broken while in use and can be made as fine and small as desired.

The accidentally wounding of a finger by a dirty instrument just used in an unclean mouth may prove a very serious matter.

Every dentist should have these six things—ability, good manners, a pleasing address, cleanliness, tact, and a good personal appearance, as he is brought in close contact with his patrons, many of whom are ladies and children—

Chloroform with cocaine, say one grain to eighth of an ounce of the former, is very useful for extracting pulps without pain.

Cut a piece of smooth soft wood, pine or white wood, eight or ten inches long by an inch broad, and quarter inch thick; give it

a coat of glue, all over, except about three inches to be used as a handle; while wet fold a piece of emery paper all round the glued part; when dry you will have a handy strop to sharpen or touch up your chisels, excavators, etc. I keep half-a-dozen on hand, covered with different grades of emery. When the paper is worn out it is very little trouble to recover them. I find them exceedingly useful for polishing the dark stains on the handles of steel instruments, burnisher, etc.

By taking a small screw, such as cabinet-makers use, screwing it into an old root overgrown with gum-tissue, warming a piece of gutta-percha and forcing it well up around the screw-head, I can get at the margins of almost any root quite handy. These screws are also very useful for extracting badly decayed and useless roots.

All packings in vulcanizers will last much longer and give greater satisfaction if the cover is put on as soon as done vulcanizing and kept on till used again. Many packings are ruined by absolute carelessness or shall I say ignorance in screwing down the cover too tight every time it is used. There is no occasion for this. After the vulcanizer is first newly packed it requires to be screwed down pretty tight. After this it can be put down nearly steam tight by the hands alone without the use of a wrench. I have often used one packing for two and three years, while a student, full of bull strength and ignorance, would destroy a new packing in one month. To use a long wrench, striking it with a hammer or stamping on it with the foot, as I have often seen done, is all wrong, besides injuring the machine by spoiling the threads.

WORLD'S COLUMBIAN DENTAL CONGRESS.

(Special Report for THE OHIO DENTAL JOURNAL, by Mrs. J. M. Walker and assistants.)

SCIENTIFIC WORK BY SECTIONS.

To facilitate work of the Dental Congress, eight sections met simultaneously in as many different halls of the Art-palace, as follows:

SECTION I. (Hall xx.) Anatomy and Histology. R. R. Andrews, Cambridge, Mass., Chairman. Geo. S. Allen, New York, Vice-Chairman. F. T. Breene, Iowa City, Secretary.

SECTION II. (Hall xxvii.) Etiology, Pathology and Bacteriology. G. V. Black, Jacksonville, Ill., Chairman. E. S. Chisholm, Tuscaloosa, Ala., Secretary.

SECTION III. (Hall xxviii.) Chemistry and Metallurgy. D. R. Stubblefield, Nashville, Tenn., Chairman. J. S. Cassidy, Covington, Ky., Vice-Chairman. E. V. McLeod, New Bedford, Mass., Secretary.

SECTION IV. (Hall xxix.) Therapeutics and Materia Medica. F. J. S. Gorgas, Baltimore, Md., Chairman. N. S. Hoff, Ann Arbor, Mich., Vice-Chairman. J. E. Cravens, Indianapolis, Ind., Secretary.

SECTION V. (Hall xxx.) Dental and Oral Surgery. T. W. Brophy, Chicago, Chairman. L. P. Dotterer, Charleston, S. C. Secretary.

SECTION VI. (Hall xxxi.) Operative Dentistry. Wm. Jarvie, Brooklyn, Chairman. H. W. Morgan, Nashville, Tenn., Secretary.

SECTION VII. (Hall xxxiii.) Prosthesis and Orthodontia. C. L. Goddard, San Francisco, Cal., Chairman. E. H. Angle, Minneapolis, Minn., Secretary.

SECTION VIII. (Hall xxxii.) Education, Legislation, Literature. J. J. R. Patrick, Belleville, Ill., Chairman. W. H. Whitslar, Cleveland, O., Secretary.

MONDAY, AUGUST 14.

SECTION I. Anatomy and Histology. Organization deferred until to-morrow, owing to delay in arrival of baggage of the Chairman, Dr. R. R. Andrews, containing his address.

SECTION II. Etiology, Pathology and Bacteriology. This section was organized and Dr. G. V. Black, the chairman, delivered an address of welcome, in which he urged the importance of the study of bacteriology and the use of the microscope in making clear many of the mysteries of etiology and pathology.

The section then adjourned until 2:30 P. M. Tuesday.

SECTION III. Chemistry and Metallurgy. Not organized on Monday.

SECTION IV. Therapeutics and Materia Medica. This section was called to order and listened to a brief address from the chairman Dr. F. J. S. Gorgas, and then adjourned to 2:30 Tuesday.

SECTION V. Dental and Oral Surgery, and

SECTION VI. Operative Dentistry, not organized on Monday.

SECTION VII. Prosthesis and Orthodontia. Dr. C. L. Goddard, of San Francisco, chairman of the section, read an opening address giving a brief history of the development of prosthetic or mechanical dentistry, noting the decline of mechanical dentistry upon the introduction of vulcanite work and its revival upon the introduction of crown- and bridge-work, the culmination of mechanical dentistry.

He also contrasted the use of the old rubber bands and wooden wedges with the modern system of orthodontia, a comparatively new branch of prosthesis, or rather of surgery—artistic surgery—reducing deformity to beauty, and requiring all the skill and delicate perception of the artist, both in color and in form.

After a cordial greeting extended to all, the chairman pronounced the section adjourned to 2:30 Tuesday.

SECTION VIII. Education, Legislation and Literature. This section was called to order by the chairman Dr. J. J. R. Patrick, who delivered a brief address of welcome to the members present, referring briefly to the importance of the questions to be brought before them for discussion.

Adjourned to 2:30 Tuesday.

TUESDAY, AUGUST 15—SECOND DAY—*General Session.*

The meeting was called to order by the chairman, Dr. Shepard, who called for representatives from foreign countries who were not present yesterday. Dr. I. L. Secher, of Copenhagen, representing Denmark, Dr. K. Takamaya, representing Japan, and Dr. R. H. Robertson, Honorary Secretary from Canada, responded and were heartily welcomed.

The chairman then introduced Dr. Otto Zsigmondy, of Vienna, Austria, who read an illustrated paper entitled

ON CONGENITAL DEFECTS OF THE ENAMEL.

of which we give a brief outline :

He defined "erosion" or "atrophy" as a frequent anomaly in enamel-development, in which the outer coating of the tooth is unequally distributed, and of only superficial depth in pits either isolated or occurring in more or less regular rows. When the pits are confluent, furrows are developed which may embrace the crown like a ring. At times several of such furrows are found arrayed in series one above the other (furrows of wavy

enamel). In other cases the enamel appears as if sown with small pits (honey-combed teeth of the English). In still other cases the enamel seems to be entirely absent at certain points, and the dentine itself comes to the surface. The defect may also affect the cutting edge of the front teeth. In the pits the enamel often has a rough, uneven surface, a more or less yellowish or brownish color, and lacks the proper polish and normal transparency, while the enamel in the immediate neighborhood of the spots has all the characteristics of the perfect tissue. In those teeth in which the dentine is exposed or covered by a thin layer of enamel only, the enamel of the normal portion of the tooth is apparently thickened, but cross sections of such teeth show that there is no increase in thickness above the normal. Spots entirely devoid of enamel are very rarely found. The dentine of these defective teeth is also very faulty in structure and conducive to the rapid progress of caries. It is characteristic of the defects in question that they are always symmetrical, so that corresponding teeth in the upper and lower jaws on both sides are similarly affected. The defects occur in the teeth whose development corresponds to the same period of time, and in the teeth they are limited to such portions as correspond in degree of development. The situation of the defects and their distance from the lateral surface of the crown accordingly vary in the different orders of the teeth. At times, if the interference with the development occurred at a very early period and no interruption in normal development took place later, it is only the first four molars, the first of the permanent teeth to harden, which show signs of abnormality. The defects are then found at the apices of the cusps only, which in consequence seem as if worn down. If the interruption of normal development occurs at a later period, when the formation of the enamel of the cusps of the first molars is further advanced, these teeth show the defect more in the direction of the root. In this case, beside the first molars, the central incisors likewise show defects in the enamel of the teeth which come next in point of time of calcification.

If the disturbance is repeated once or oftener, a corresponding series of furrows or pits will be found in the enamel of the teeth which were in process of calcification at the time of interruption of the development. If a furrow be found in the first molar near the edge, an analogous defect will appear half-way up

on the crown of the central incisor. The cuspid will show the defect nearer the point of the cusp, while the first molar and the teeth which undergo calcification later will be free from defect.

Calcification in the upper jaw proceeds as follows:

1. The central incisor.
2. Cuspid.
3. Lateral incisor.

This noteworthy circumstance, as yet inadequately studied, determines why we find the lateral incisor developed almost normally, while defects are apparent in the enamel of other teeth of the upper jaw.

The first molar is but rarely the seat of typical defects, the second molar still more rarely, and no instance of such defect has ever been observed in the two last molars. Certain writers maintain that the milk-teeth never exhibit typical defects. This, however, is a mistake. Temporary teeth are occasionally observed which resemble permanent cuspids and molars in defects of the enamel. As, in the majority of cases the entire denture is involved, the cause of this anomaly must be sought for in general diseases of the organism whose effect as regards the other tissues of the body has vanished, while its influence has become permanent in the teeth.

Rachitis, scrofulosis, syphilis, the exanthemata, convulsions, meningitis, grave attacks of suffocation as, for example, from whooping-cough in early life, have been the alleged causes of the disturbances to the normal development of the teeth in their follicles. In view of the literature dealing with the subject, it is rather astonishing that the microscopic examinations of teeth so affected should have been almost entirely neglected, as this must form the basis for the solution of the question of the cause of the deformities. Dr. Zeigmondy pronounced the nomenclature in describing these defects, very faulty.

Terms which are appropriate for a great many cases, such as "wavy enamel," "honey-combed teeth," "furrowed teeth," and similar expressions, are not suitable in every case. The descriptive appellations "syphilitic" or "rachitic" teeth are to be rejected, because it is doubtful whether the diseases are the real cause of the defects, and if they are a cause they can only be so in a small proportion of cases. The term "atrophy" is likewise incorrect. The expression "erosion" is no less to be rejected. Erosion sig-

nifies loss of substance by mechanical force. The term erosion is properly applied to the notch-like grooves found on the neck of teeth, and which have been produced by the use of gritty tooth-powders, etc.

He said, I shall take the liberty of offering the following: Where individual organs or parts of organs are defectively developed because of external or internal noxiæ, pathological anatomists are wont to employ the term hypoplasia to express that condition. We may accordingly speak of hyperplasia of the enamel.

May I be permitted to express the hope that this term may soon find a place in the literature of the subject.

The paper was illustrated by charts and specimens of defective deciduous teeth, etc., and elicited frequent applause.

It was discussed at some length by Drs. J. J. R. Patrick, G. V. Black, L. L. Davis, Geo. Cunningham (England) and others.

Dr. Patrick said: We all know if there are any congenital defects in the enamel of the deciduous or the permanent teeth, they must have their origin when the enamel is formed; and if hereditary disease is the cause of such defective enamel, it must necessarily affect the deciduous teeth first, that is the point I wish to make. All eruptive diseases during gestation must necessarily affect the enamel of deciduous teeth if the disease takes place during the formative process of the enamel. Can it be otherwise? I have already put on record three very remarkable cases bearing upon that subject, the effect of eruptive diseases on the enamel.

Dr. Zsigmondy said: I have observed just the same defects in the deciduous set as in the permanent set. I have passed around a bottle containing two cuspids of the deciduous set, where defects appear just as in the permanent teeth, and which exhibit the characteristic microscopic structure. I have not seen it in the deciduous central incisors; these teeth are much more liable to decay; but you will find here, if you examine the cuspids which I have exhibited, just the same effect as you find in the permanent teeth. I have made microscopic slides, and I find the same line of interruption as in the permanent set. This was not, however, in a syphilitic case.

Dr. Patrick. What was the age of the patient when those teeth were extracted?

Dr. Zsigmondy. Ten years.

Dr. Cunningham called attention to the fact that in the paper the question of *the cause* of these defects is not entered into. It is a statement of obscured facts, and the subject is far from exhausted. He suggested that the paper be referred to the appropriate section for further discussion after inspection of the specimens and careful reading of the paper. He said, with regard to this line of interruption which he mentions; this is a new fact brought before us in a very interesting way. So far as the microscopic appearance is concerned, no other defects appear upon the coronal portion of the tooth; yet when you examine the sections through the microscope, you find this line of interruption appearing. It must have been due to the same cause, because it is a much larger defect.

Those who are more familiar with the development of the cap of dentine will see further that the calcification is not an even and straight line, but it is wavy, and the waviness will account for that defect.

In studying this question, you will find the defects may be little or great, and the duration may be short or long; we find a great variety of defects.

In regard to the nomenclature of the subject Dr. Cunningham said, there is no doubt but that the term which has been suggested, Hyperplasia, is in conformance with recent researches in pathology.

Further, we have had suggested, in addition, that in talking of enamel defects to distinguish them from hyperplasia, which might also be a term applied to the root or cementum of the teeth, the use of the term coronal hyperplasia, not confining ourselves to the enamel, because it is perfectly evident that these interruptions of development affect the dentine as well as the enamel. In giving it a name we must take the name, if we possibly can, that will appeal to the whole structure.

Dr. C. C. Carroll objected to the name "Congenital" in the title of the paper, as it had led him to expect what was conspicuously omitted, viz: a discussion of the *cause* of the disease, a definition of the *hereditary* line, and an indication of the character of the disease.

The paper was then referred to Section No. 2. The Secretary-General then read several notices and the Congress adjourned until Wednesday, August 16, at 12 o'clock.

WORK OF THE SECTIONS—TUESDAY, AUGUST 15.

SECTION I was organized, and the chairman, Dr. R. R. Andrews read a feeling address of welcome. Of the position rightfully to be occupied by dentistry he said: Dentistry should not be one of the fugitive and obscure callings, irresponsible and independent; it should seek to fill an honorable place in the ranks of the great medical fraternity, where I believe it justly belongs. Our place is, and ought to be, among the specialties of the great guild of physicians. The oculist, the aurist, and the dentist should stand side by side, part of the great body of scientific workers who heal the sick.

Of the contributions of dentistry to science and literature he said: Our histological and pathological, our mechanical inventions, our ever-increasing discoveries with chemistry and the microscope, all see with what far-seeing study and native originality our students apply themselves and claim their places among the scientific explorers and molders of scientific thought.

After words of cordial greeting he closed saying: Let us have a free and open arena for discussion; let fraternity and good-will dominate our council, and we shall mark the work of our Section of this Congress of 1893 as one of the most productive of good results we have ever held.

The first paper before this section was read by Dr. W. G. A. Bonwill, entitled

WHAT HAS DENTISTRY TO DEMONSTRATE AGAINST THE HYPOTHESIS OF ORGANIC EVOLUTION?

The following is an extract:

Evolution has permeated every shade of thought and work, and some of the best minds have become imbued so far as to quite affirm that it is no longer a hypothesis but a stable truth.

As a free thinker and worker in dentistry and cognate science, Dr. Bonwill believed he had some right to be heard for what forty years of research and demonstrative work have placed before the world, and he had in the argument he should present what seemed to him truth for a basis. After referring to an article in *Lippincott's Magazine* in 1889 in which he set forth a synopsis of the points of the laws he should present, Dr. Bonwill read the following claims:

I claim, first, that the human jaw and teeth show, beyond doubt, the workings of absolute laws which gave them the highest efficiency, and from which organization there could be no change except retrogressive, not progressive; not to higher form.

Second—The human jaw is based for its organization and workings upon the principles of the equilateral triangle, which as well underlie the shape of every tooth and the numbers to occupy that equilateral space.

Third—Given the length of one arm of the triangle, say four (4) inches, and it can be shown from this alone how, whatever or whoever made the first human jaw, with a pair of dividers and a straight-edge the size, shape, and number of each tooth in both upper and lower jaws and their absolute places therein were made; and further what should be the exact arch containing the six incisors in both jaws, and the action in mastication and incising of food.

Fourth—That the human jaw is no exception to this rule. That the proportions of the human body are found on the equilateral triangle, and, unless so, no fittest organization could have ever existed or been brought into being, nor could it ever have been reached unless by the same rule at the very beginning of its existence.

Fifth—That, if the hexagon cell of the honey-bee, which cell existed before man, is incapable of change to make it fitter for the object for which it was designed, then we claim it as a precedent that the same principle in the human jaw is none the less true and demonstrable.

Sixth—I claim not only to have discovered the laws by which organizations are made, but have perfected the drawings from these laws by which any skilled artisan or mechanic can reproduce and duplicate artificially, what the working model, here presented, demonstrates, and its action shows, beyond doubt, the highest efficiency in such an arrangement, based simply on the principle of the equilateral triangle.

Seventh—If the human mind cannot conceive of a fitter organization than is here demonstrated and produce it from the laws and principles of evolution, then there can be no progression to a higher state that can form a basis of argument for the evolutionist.

Eighth—That, if no one can show any fraud in this work

and the claim of "an ultimatum not having been reached" by a human being, it must follow that nature, who had the first chance at the building of organizations, must have done her best and made the very fittest in the beginning.

Ninth—It is claimed that natural selection could only have reproduced a pre-existing organ or organism or previous type, and could add to new organ or alter the form of the pre-existing one to higher efficiency.

Tenth—The mechanical means, which can only be externally applied, cannot even reproduce an existing type, let alone form an additional organ or organism.

Eleventh—There is no proof that when an organ has once been lost it has never been reproduced in the same animal; while, in the progeny, the same organ will again appear. Nature will patch up in order to prolong life, but never in one lifetime make the effort to even reproduce the lost organ, nor lay the foundation in the offspring to make an additional organ like the original or one of a higher efficiency.

Twelfth—The human jaw (to the glory of dentistry) furnishes one of the strongest or most absolute proofs of Claim 10 in the reproduction of the temporary set of teeth, which, when completely lost at the age of fifteen, again appeared in the offspring when there was no such organism existing at the time of procreation to give birth to an entirely new temporary set in that offspring.

Thirteenth—The dental apparatus affords the best proof of the working of a practical, scientific workman from pre-existing laws, and nothing but intelligence and a personality could have ever conceived and made such organs and organisms, and no further proof is needed of the purely scientific productions given in this discovery.

The calculations were largely based on the equilateral triangle, and their works are so perfect that, in the obelisk alone, not a line has ever been changed to make it more perfect. Polyclitus, 500 years before Christ, discovered in the equilateral triangle, the square, and the circle, he had the laws and rules to show the perfect proportions of the human body. Plato placed this angle as the most important of all geometrical work.

The circle is divided into 360 degrees, and these again into the hexagon of 60 degrees, upon which the honey bee has founded

its cell of equilateral triangles. Its importance is as great as that of the circle, of which it is only a sixth, and it is equally perfect, because it fills space perfectly and no more can be crowded into the lines given.

No development of the equilateral triangle can be made, except to carry out the geometrical laws on which it is based; and it is the first practical shape given after the "point to a straight line—the shortest distance between two points—to a circle." It is the basal angle of all development of form. It is proven beyond doubt in the human jaws, their creation perpetuation and preservation, without change to a higher form of organization, and must ever remain the basis of this complex organism, which cannot be changed to a higher type any more than its base can be.

From what will be shown you, any one conversant with mechanical drawing can construct a perfect set of human teeth as to size, crown surfaces, and positions, without ever having seen an original set, and can reproduce a working model of artificial teeth which, in the mouth, shall work perfectly as in nature.

The average jaw measures about four inches from the center of each condyloid process to the median line at the cutting-edge between the inferior central incisors. It is as long as five in many cases of the Indians and Malays, as well as some in all nations. The measurement must be taken from the lower jaw, as being the one of motion; the upper has to be made to conform to the special forms and measurements of the lower. The center of each condyle, being the center of motion, rotating on one condyle only—the other describing the arc of a circle by moving forward in the glenoid cavity—is the proper point from which to measure the angle. The examination of 4000 dead and at least 6000 living jaws attest this assertion.

The few cases where the angles do not hold true are among nations who compress the cranium. The human jaw, left to its own normal development, must always be an equilateral triangle, as is shown most beautifully and completely in all embryos from the period of formation of the lower jaw. I will go so far as to state that the human jaw was designed by first making the lower; and the dividers from the same standpoint, while developing the lower, when carried over the arch or outer boundary of the lower, show the exact size of each upper and the distance they should

be from the lower in order that, in the lateral and forward movement of the lower, one-half of the teeth, or from the median line to the last molar on one side only, should be in apposition for mastication and incising. The proportions of the upper teeth to the lower are as exact as any of the measurements shown.

The size of the arch of the lower jaw must be just one-twelfth of the main circle drawn around the equilateral triangular jaw, or the teeth could not be made to fit the space. And also to permit perfect lateral movement and action of all the grinders and cutting surfaces in common in masticating and incising.

The mean diameter of the fourteen lower teeth, in line, measures the same as one line of the equilateral; when these fourteen teeth are thrown into a circle, they should completely fill that circle. The six incisors' mean diameter, in line, measures the same as the two bicusps and two molars on either side, forming again an equilateral triangle. The six incisors of the lower jaw fill just one-third of the arch, the bicusps and molars filling the remainder of the circle.

As the arch of the six incisors is one-twelfth of the main circle, so it will be found absolutely correct that the one-twelfth of this smaller circle will give the width of the central incisors of the lower jaw, which shows why they should be the smallest of all the teeth.

The grinding or masticating surfaces will be found to have the same absolute shape and curves, and each tooth surface varies in depth as you leave the incisors backward to the last molar. They have ever been and must always be so. The faces on all sides of each tooth in both upper and lower jaw vary as much as you find them in the arch. No one tooth can be substituted for another, they cannot be interchanged.

The teeth of each human being are so proportioned that the lower jaw cannot contain the teeth of the father and the upper of the mother, or *vice versa*. The laws are rigid, or else there would be no smooth working of the teeth one upon the other in action. Nature, left to herself, always brings proportion. It is this law that is herein stated, and if law has any value as a guide, then we have it in absolute perfection in this most wonderful piece of mechanism, which has no mistake of nature on its face, but, on the contrary, the mark of retrogression everywhere depicted from civilization and man's unwise interference.

In proceeding to the description of the working model and the drawings with which his paper was illustrated, Dr. Bonwill expressed his conviction that a careful study of the subject would prove that what he had presented was worthy of some consideration as a truly scientific way of getting at an *ultimatum* by which evolution shall be decided to be as much of a fallacy as it has been a hypothesis. He also invited those who were interested to come to him privately, for a more complete exposition than he could make in the time allotted to him here.

DISCUSSION.

Dr. Eben M. Flagg, Paraguay, S. A. I am one of those who believe in trying to reduce the various manifestations of nature to mathematical precision. The essayist made one point, where he spoke of a monkey's eye tooth, that inspires me to mention a little circumstance. Some years ago we had a Paraguay monkey that was tame. One morning the monkey bit a child, and I made up my mind that that should not occur again, so all of the canine teeth of the monkey were cut off flat. According to Dr. Bonwill's theory, that monkey should have pined away and died; but instead of that, it lived, got very fat, and is now on board the United States man-of-war "Tallapoosa," where anyone can see him in a flourishing condition. Dr. Bonwill may say that this case was not parallel, that the monkey was pampered and fed with all sorts of luxuries, and therefore the rule did not apply; but if Dr. Bonwill does say so, what is that more than announcing the evolution of which he speaks?

Dr. L. P. Haskell, Chicago. These demonstrations of Dr. Bonwill are very interesting. As far as I understand his principles, it seems to me that they are admirable. I have been employing his method in the arrangement of the upper teeth. He commences with the lower ones; I have wanted for a number of years to see him articulate a set of teeth, starting from the foundation.

With regard to the upper teeth, I have a long time been carrying out that principle. The radius of the circle is the width of the central lateral and cuspid. When I had a patient with a perfect set of teeth, I applied that circle and found it to be perfectly true. A line drawn across the posterior surface will come across the posterior margin of the second molar. But there is

this fact : I select a set of teeth for a certain case, and take my dividers and measure. I am surprised to find how few circles are needed for the different sizes of teeth. I use my judgment for the various cases which come to me of course. It occurs to me just at this moment that dentists are often at a loss to know what was the width of the superior teeth. If you have the six lower anterior teeth, you have a positive guide as to the width of the upper teeth. You will make no mistake in selecting the proper-size tooth, if you follow that method.

Dr. Bonwill said some time ago that Dr. Talbot made a certain statement, which I have learned Dr. Talbot never made. My attention was called to the fact that in ninety-five mouths out of one hundred there is a depression in the region of the cuspid. I wish the term "canine tooth" were banished from our text-books and vocabularies. What is the use of applying the name of a dog's tooth to a human tooth? Cuspidati should be used instead, and would be just as well understood. In the region of the left side of the mouth in ninety-five cases out of a hundred, by actual count, there is a depression. The alveolar process is shorter on the left side than on the right. In many artificial sets you will notice that the teeth are shorter on the left side than on the right. The dentist has arranged his teeth by the model and he gets the teeth shorter on that side. On the lower jaw, at the left side, it is very common that the teeth are higher and more prominent than on the right side. On the lower jaw it is also very common that the right side is farther from the median line than the left side. If you want to arrange the set symmetrically, you will find that you must set the teeth farther in on the left side than on the right, because the right side is so often more prominent. Why is this so? I have been asking the question many years, and have finally adopted Dr. Talbot's theory. The majority of people bite their food off on the right side of the mouth. It is more common to masticate on that side of the mouth, and therefore the right side is more developed than the left. I held on to that theory until two or three years ago, Dr. Talbot became interested in the difference between the two sides of the jaw, and we made several careful examinations of models which I have in my possession. Dr. Talbot did not say that we could not or did not chew on both sides of the jaw; what he said was that the lower

jaw moves from right to left in mastication. We do not chew from left to right. You can chew on the left side of your mouth, but try to throw your jaw from left to right, and you will see how awkward it is. The result of this is, that there is a gradual change in the alveolar process. Throwing the alveolar process to the left naturally makes a prominence on the right side.

Dr. J. J. Patrick said that he did not feel capable of discussing the question as he was not sufficiently versed in mathematics, and then proceeded to analyze Dr. Bonwill's series of propositions controverting each one in turn with rather bitter sarcasm and ridicule. The first proposition is pronounced rotten to the core. The jaws he classified as parabolic curves rather than equilateral triangles, the jaw in its movement describing the arc of a circle. The human jaw is a lever of the third order, the power being the masseter muscle placed between the fulcrum and the anterior portion of the jaw which is to be moved at the angle of the ramus. As to the principle that the equilateral triangle underlies the shape of every tooth Dr. Patrick said: You cannot get an equilateral triangle out of any one of them. He said, It is a bold man who will say the Creator has made anything wrong, or that he could not produce a human being on the square just as well as he could on an equilateral triangle. I am only sorry that he has not produced more men on the square than he has.

Dr. Bonwill said in reply, that although he had *heard* but very little of what Dr. Patrick had said, he could *see* plainly in his countenance animosity and ridicule. He said, all that I ask you to do is to follow me in every line that I have given here and prove whether I am right or wrong.

Dr. C. N. Peirce, Philadelphia. In the absence of Dr. Patrick, I simply want to make one remark. Dr. Patrick did not come here to reply to Dr. Bonwill. Dr. Bonwill had written thirteen conclusions, and those conclusions, as Dr. Patrick showed you, were utterly uncalled for, and inconsistent with the text. I told Dr. Bonwill before he came before you, several months ago, that these conclusions could not be drawn from the text. When he made the statement that animals did not reproduce organs that were lost, he made a statement that was utterly false, and was disproven by thousands and thousands of examples in animals. Now, when he makes this statement he must expect to have it criticised. When he makes a statement there has been no change

in the human jaw, I ask you to look into the mouth of any patient that comes to you, and see the difference. We have what we call a monstrosity, which we wish to correct, which is a variation from the normal condition. Dr. Bonwill expects to see a sudden change. If you want to get a good idea of the change that takes place in nature, take pure water, put a few drops in one jar, and a few drops in another, and so on, all of the same kind, and you will find that there is a great difference between the first and the last jar, although they were taken from the same source.

Dr. W. X. Sudduth Minneapolis. In the discussion of this subject, we do not want to loose sight of one essential point. Dr. Peirce has said that Dr. Bonwill's deductions are not borne out by his observations, to the full extent; but that Dr. Bonwill has discovered a law that governs the articulation of the human teeth as we find them at the present time, and it is a law that, taken and applied to this articulation that he has developed, gives us the best and most practical articulation that we can make for artificial dentures, so far as my experience goes. We are all, to a greater or less extent, specialists, and we are very apt to ride our hobbies very hard. I think in the discussion we have had here to-day that we have had as marked an illustration of this particular truth as you will ever have in your life. In several of the points where Dr. Patrick has answered Dr. Bonwill, he has, whether intentionally or not, evaded the point at issue, and discussed the question from a different standpoint. I do not think that science gains any benefit from any such discussion of papers, and I was sorry to see Dr. Patrick take so extreme a stand as he did in answering the question.

There is a principle here that will be a benefit to every dentist who will study the law and apply it in his practice as far as possible, as Dr. Haskell has testified he has done.

Dr. Schwarze, Leipsic, Germany, then made a few remarks, approving of Dr. Bonwill's method, and saying that it was almost the same as was being followed in the universities at Berlin and Leipsic.

The Section then adjourned to meet Wednesday, 2:30 p. m.

(To be continued.)

THE ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

Continued from page 449.

DR. A. W. HARLAN read a paper entitled "Recent Additions to the Therapeutics of Pyorrhœa."

He said: In considering some of the therapeutic measures in treatment of pyorrhœa alveolaris or the correction of the loosening of the teeth, the operator naturally concludes that the teeth have been firmly banded, wired or fixed in place. A presupposition will also include the detachment of sanguinary or serumal deposits, their removal from the pockets, and the perfect cleansing of the pockets with a solution of sodium fluosilicate in water, 1 to 155. This solution is in most cases followed by the injection of an 8 per cent. solution of soziodol which is dissolved in water. Boro-glycerine in water, boric acid water, C. P., one to twenty-five, and sodium fluoride in water, one to three hundred down to one hundred and fifty-five, in the beginning of the treatment are more valuable as cleansers than they have been thought to be. The products of the microbes in the pockets where pus is found are almost wholly acid in reaction, and an alkaline solution will be generally indicated instead of one acidulated. Later, stimulating, acidulated and astringent injections are a necessary adjunct in the control of the production of pus. A valuable drug is trichloroacetic acid in varying solutions from one-half of one per cent. to six or eight per cent. in water. This is a most valuable astringent, stimulant and refrigerant. Its germicidal value consists in the complete destruction of the organisms found in pyorrhœa pockets. The drug is used every other day or once in three days. When a powerful astringent is needed an aqueous solution of alumnol is indicated. It has the property of coagulating, then dissolving the coagula and penetrating still deeper and re-forming a coagulum, and at the same time is a stimulant and germicide. I generally use about two to seven per cent. solutions. In cases of general wasting of the alveolar process and recession of the gums without the sanguinary deposits on the roots, it is best to begin with from one to two per cent. of sulphuric acid dissolved in cinnamon water for four or five visits at intervals of three days

between each visit. I recommend a dentrifice during this period composed of

R	Sodium fluoride,	-	-	-	-	-	gr. C.
	Creta preparata,	-	-	-	-	-	3 j.
	Powd. orris root,	-	-	-	-	-	3 ij.

Perfume with an essential oil to suit.

This treatment is followed with injections of two to six per cent. of sozoidol for a month, once every three or four days. A small quantity, one drop of the solution is injected into each pocket. If the gums are much thickened with blunted septa, they are painted with a solution of iodide of zinc, twelve grains to the ounce of water, always carefully drying them before using the solution. When a case is presented in the acute stage, a paste composed of iodol and cinnamon oil is used, gently rubbing it into the pockets with a thin spatula; when much pain is present, I use as an injection into each pocket the following:

R	Melted carbolic acid,	-	-	-	-	-	minims xl.
	Eugenol,	-	-	-	-	-	minims xxx.
	4 per cent. solution of hydrochlorate of						
	cocaine,	-	-	-	-	-	minims l.
	Acidi boracici,	-	-	-	-	-	gr. lx.

One-half to one drop in a pocket will arrest the pain. This is not to be repeated unless there is great pain.

In rheumatic subjects I have found from five to ten grains of iodide of potassium in peppermint water, after meals for a week or two, will materially aid the local measures. All cases of loosening where there are serumal deposits, are much benefited by using trichloracetic acid in water up to six or seven per cent. injected into the pockets carefully with a gold, glass or platinum pointed syringe. An interval of one to two weeks is allowed to elapse from time to time in the treatment of all cases, without any care save cleanliness and massage of the gums by the patient himself. There are some teeth from their location and the occlusion that no treatment will save permanently. The matter of extraction must be decided by the dentist, without delay, as the attempt to save a tooth already hopeless is only a waste of time, and it may endanger the future stability of others not much affected. The destruction of a pulp of a tooth is often indicated when it is inflamed from the depth of a pocket alongside the root

of a tooth. Many cases that are so stubborn that they will not yield to local treatment, are promptly relieved by the filling of a root and the continuance of the previous line of medication. I do not urge the unnecessary destruction of the pulp of any oral tooth, so it will cause disfigurement, but great care must be exercised in the selection of cases, with the happiest results, should no mistake be made in the outset. If the patient in any case is found to be a mouth breather, a rhinologist should be selected to correct this habit if it is possible to do it. The whole *modus operandi* of treatment of loose teeth requires much patient study and the adaptation of every aid to secure any degrees of success, therefore I urge upon you the absolute necessity of studying each case before laying out a line of treatment, as no well-defined plans in advance will cause much subsequent trouble and the probable loss of many teeth which might be saved had thought been bestowed upon the case in the beginning.

Dr. A. O. Hunt read a paper entitled "Iowa's Share in the History of Progress of Dentistry," a brief abstract of which is here given.

He said: Iowa has surely done her share in the advancement of dental science, and I shall be in little danger of exaggeration in what is presented for your consideration.

Prior to the organization of this society in 1863, there is little authentic date to be had. There was evidently located throughout the State many good and qualified practitioners, but the means of communication at that time was very crude, there being no railroads of any considerable length in the State. A few of the dentists located in the larger towns thought it would be well to gather the strength of the profession together in a society, and began a sort of missionary correspondence.

The first meeting consisting of only seven members created great enthusiasm, and as we look back at the ideas presented and discussed in the early sessions we are impressed that some of the questions are not yet settled for they come year after year before other society meetings for a solution.

The following were some of the subjects for consideration: Vulcanite injurious to the tissues of the Oral Cavity on account of the Red Oxide of Mercury contained therein. The Use of Anesthetics. Gold the proper Filling Material (amalgam denounced). Devitalizing Pulp with arsenious acid and Filling

Root immediately. Treatment of Alveolar Abscess with Creosote and Iodine.

The requirements for admission to membership were a good reputation, one to be in regular practice, and those who had been students of dentistry for two years. Public meetings were to be the order, for the purpose of educating the people in the importance of the care of the teeth.

This was carried out for the three or four years following, Drs. Allport, Taft, Atkinson and others giving the lectures at various times, until the plan was unfortunately dropped.

The year 1865 was a memorable one in many respects. There were more than one hundred dentists in attendance, and this only the second year of its existence; many having ridden by stage four hundred or five hundred miles to be present. The society placed itself upon record, that none should enter the profession without graduating at a dental college, and also recorded its opposition to the general extraction of teeth. A committee was appointed to suppress dental quackery.

Dr. Lucy B. Hobbs was admitted to membership in the society, the first woman to secure this distinction, as she was also the first woman receiving the degree of doctor of dental surgery, which was conferred by the Ohio Dental College, in the year 1865.

The society passed a series of resolutions defining their position to be in favor of and encouraging women to adopt the profession of dentistry.

In 1872 a resolution was passed to meet with the Illinois Dental Society in 1873. This was the largest meeting of dentists ever held in the West, outside of the American Dental Society. These records are full and were published conjointly and are scattered through the dental libraries. The good feeling and harmony thus secured has since that time been kept up. Both societies always have full representation from each State at all of their meetings.

In 1874 the Legislative Committee reported having secured the recommendation of the passage of a dental law by the governor in his message and that a bill had been presented. An amusing incident occurred at the time of the consideration of the passage of this bill in the legislature. The wit of a granger lost the bill. The bill contained the usual clause that nothing in this

act should interfere with the physicians extracting teeth. After the clerk had commenced to call the roll on the vote, a granger arose and offered the following amendment: "That nothing in this act shall be construed as preventing a farmer from extracting teeth from his drag or harrow." The point was so good that the body was convulsed with laughter and every man whose name was called after this, answered "no."

1882 was a year of excitement and enthusiasm as there had been consummated two of the important projects of the past years—the passage of the dental law and the establishment of the dental department in the University of Iowa.

The profession now felt that they were on solid foundations and that they were repaid for their persistent courage and expensive outlay of means and strength.

This year was demonstrated for the first time before any society the methods of bridge work.

We are well pleased with the present condition of the practice of dentistry in the State of Iowa. It numbers 150 members in its State Society and nearly as many in the Eastern Iowa Dental Society, which is only a young organization, but an outgrowth of the progress of dental science among us.

There are about four hundred and fifty practitioners in the State.

Probably there is no State in the Union where so large a proportion of the practitioners are following the advanced methods of practice. I doubt whether there is a community which as a whole is any better informed as to the possibilities of dentistry. This may seem like saying too much perhaps, but when we consider the small percentage of illiteracy in the State (Iowa being second of all the States in this respect) it cannot create any amount of astonishment on the part of any one.

The future history will move along on the same line of progress that has characterized the past, without doubt. Of one thing I am certain, there can be no advance for the good of the profession that will not meet with a ringing response from Iowa.

The subject being passed, Dr. C. B. Rohland of Alton read a paper on "Conservatism in Crown- and Bridge-Work." He said: The workman, whose conception of mechanical dentistry is bounded by gum teeth and the vulcanizer, is no longer equal to the task of presiding over the modern laboratory. The precious

metals are now to the front, and no one is considered competent to assume the responsibilities of the laboratory, unless he is "well up" in their use.

It is intended in this paper to call attention to a stubborn fact that is too often lost sight of, that crown- and bridge-work is not a panacea, but that it has its limitations beyond which the honest dentist must not allow himself to be carried by his enthusiasm or his greed.

There is considerable to the unscrupulous to shut their eyes, when conditions contraindicate this class of work, because of the money there is in it. The enthusiastic bridge worker nearly always clinches his arguments with the all-sufficient and telling assertion of how well it pays.

Because of the gratitude and good opinion of the patient.

Because of the opportunity it offers of constructing handsome, showy and expensive pieces of jewelry.

And because of competition. The competitor across the way does it, and must not be permitted to monopolize all the glory to be gotten out of this "latest and greatest invention" of modern dentistry.

It is especially adapted to small spaces where the substitutes hitherto in vogue have so often been so unsatisfactory.

There is no other operation in dentistry calling for such a high grade of skill, such a comprehensive knowledge of anatomical and physiological relations, such fine intuitive perception of pathological possibilities and probabilities, as bridge work. Doctor Bonwill truly described the situation when he once said, that "but few even of the best dentists are capable of performing the high class of work necessary to make it (bridge work) successful."

My experience and observation lead me to accept that statement as containing a large amount of truth. If that applies to skilled workers what shall be said of the productions of the average dentist? The testimony of all expert bridge workers is, that the highest grade of skill alone is equal to its demands. This, then, is the first limitation.

To keep the denture even approximately clean is a matter of some difficulty. Much depends on its proper construction, much also depends on the patient's efforts. The best gold and porcelain work is, however, liable to disagreeable odors. No amount of skill and care is able to unite gold and porcelain so perfectly

as to keep the secretions of the mouth from between them. In addition, very many patients are *not* cleanly, and will *not* expend the time and effort necessary to secure good hygienic conditions. That lack of cleanliness in any artificial denture is frequently responsible for disturbances, both local and systemic. If the dentist knows his patient's habits to fall below the requirements, and has every reason to expect that ere long the denture will become the abiding place of fermentation and putrefaction, he has no right to jeopardize this patient's welfare by inserting extensive bridge work.

While bridge work as usually constructed is stronger than any other denture made, yet owing to its immovability, it is subjected to much harder service, and relatively is just as much, if not more liable to break. The porcelain facings are prone to check and fracture.

The fact that in a true bridge replacing the six front teeth, the contour of the gum cannot be restored, and that by reason of the "self-cleansing" space considered necessary between the teeth and gums, articulation is necessarily imperfect, bars the use of this kind of bridge work for the orator and the vocalist.

Another serious consideration is the strain put upon the supports whereby two or more roots are made to support not only their own crowns but their neighbors as well. When one sees statements made by enthusiastic advocates, men of standing too, that loose, diseased teeth can be used for supports, and that the quicker these teeth are bridged and crowned, even though abscesses be still discharging, the better they will heal, it seems to me the climax of disastrous advice is reached.

Again, spaces, otherwise well adapted to be bridged, will often present themselves when only sound teeth with healthy pulps can be utilized for supports. As a rule, the mutilation or excision of sound teeth or the devitalization of healthy pulps simply to furnish supports for one or even more substitutes, is a piece of unjustifiable vandalism. Bridge work may be said to have a tendency to cultivate in its votaries a lessened regard and veneration for sound teeth and living pulps, a tendency much to be deprecated.

Pathological tendencies are necessarily always present to a greater or less extent in pulpless and capped teeth and ferruled roots, no matter how thoroughly the diseased conditions may

have been treated, or how skillfully the caps and ferrules may have been adjusted. This is especially true of teeth once diseased, and their condition is very much affected by variations in systemic conditions resulting in impaired health and lowered vitality. The tendency to a recurrence of disease in teeth once subject to inflammatory conditions being recognized, and that caps, crowns and bridges are foreign bodies exerting more or less deleterious influences, and that a high standard of vitality exerts a powerful influence in holding these tendencies in check, it follows that the general health and vital tone of the patient becomes an important factor in deciding either for or against the advisability of this work.

In view of the problematical durability of bridge work, the expense thereof rises to the dignity of a real objection.

While bridge work in selected cases is unquestionably a most valuable adjunct, in its present stage of development its general adoption and universal application is limited.

The discussion was opened by Dr. W. H. Taggart of Chicago, followed by W. O. Kulp of Davenport.

(To be continued.)

COMPILATIONS.

COMBINATION OF COHESIVE AND NON-COHESIVE GOLD IN FILLING.*

BY C. N. JOHNSON, L.D.S., D.D.S., CHICAGO, ILL.

To say that nothing new can be written upon such a subject as this is to say something old. The statement is often made, and the impression seems to be firmly fixed in the profession, that nothing original can be said about the manipulation of gold in filling teeth. And yet at the recent meeting of the Illinois State Dental Society a prominent member of the profession made the assertion that there never had been presented a suitable paper dealing with the subject assigned for discussion this evening. A somewhat careful consideration of the matter leads to the belief that the speaker was right. It is probably true that no paper has yet been published giving a detailed, definite method for combin-

* Read before the Chicago Dental Society, June 9, 1893.

ing cohesive and non-cohesive gold in the same cavity. The reason for this probably lies in the fact that there is such a diversity of form in the cavities we are called upon to fill that no one method will apply to all cases. Even in cavities classified under any one general head, no uniform plan of procedure can invariably be followed to advantage. Judgment and discrimination as to the proper arrangement of pellets or cylinders in each given case must be exercised in order to gain the best results. And yet it would seem desirable to formulate some definite rules of procedure by which a beginner might be led to manipulate the filling material with some degree of methodical precision.

In a paper necessarily limited in length by the plan of having two subjects presented for discussion in one evening, it will be impossible to treat this subject in anything like a complete manner. Only one method will be described, and this not so much in detail as might to some seem desirable.

In the use of the terms cohesive and noncohesive gold, many writers seem to assume that there is no gradation in character between a gold which cannot be made to weld with any amount of pressure—non-cohesive; and which welds on the very slightest provocation to a degree which renders it harsh and unyielding in its working qualities. To them the term cohesive gold evidently signifies a substance of a sticky, unmanageable nature, a pellet of which, when accidentally dropped in any wrong position in the process of filling, is irretrievably fastened to this false situation, and cannot be shifted or worked into a more desirable position, on account of its persistent tenacity in cohering to the surface of the condensed gold already in the cavity. Gold having this extreme cohesiveness is a rarity. If the cohesive gold in universal use by the profession possessed such remarkable cohesive properties as this, we should see very many more leaky fillings than we do, and we should also see the surfaces of gold fillings retain a polish better than most of them do. The truth probably is that among all the golds on the market to-day there is comparatively little that is absolutely non-cohesive, unless made so through special preparation by the dentist himself, and a smaller per cent. still that could be claimed as perfectly cohesive, unless other means than the ordinary methods of annealing are resorted to. It may therefore be assumed that most of the gold inserted in teeth at the present time is used in a semi-cohesive condition,

and this condition is more favorable to good results than would an equal use of either a strictly non-cohesive or a thoroughly cohesive gold.

But there are places where we need a non-cohesive gold, and others where the gold should be as cohesive as we can make it, and it is to the definite arrangement of the different forms, non-cohesive, semi-cohesive and cohesive in the same cavity that your attention is invited.

Let us suppose a cavity properly prepared on the proximate surface of a bicuspid, extending well over on the occlusal surface. The proper preparation of a cavity like this implies that the cervical outline shall be as near horizontal as circumstances will permit. An abrupt angle between the cervical and lateral outlines is of course impracticable, but the curve should be a rather sharp one, in order to give a broad, level base to the cavity.

The non-cohesive gold to be used should be in the form of cylinders, and the cylinders should be sufficiently large so that when laid along the floor of the cavity with the ends facing the buccal and lingual walls and there compressed, the layers of foil forming the cylinder will be wide enough to extend from the wall of the cavity nearest the pulp to the cervical border, and overlap it.

The portion of the cavity in which the filling should be started in these cases, is usually in the angle formed by the junction of the lingual and the cervical wall, or, in other words, in the cervico-lingual corner. This statement is made with the reservation that no one method of procedure can safely be followed in all cases. We cannot always find an ideal formed cavity, and any modification in the form of the cavity may modify the starting point of the filling, as other processes of operating are modified by circumstances.

A large cylinder of non-cohesive gold is laid on its side in the cervico-lingual corner, with one end looking toward the buccal wall and the other slightly turned up toward the occlusal surface. This is carefully "coaxed" into position without breaking up the layers forming the cylinder or disintegrating the mass. No attempt is made to condense this first cylinder. It is partially compressed to ascertain whether or not there is going to be a sufficient mass of gold which, when condensed will perfectly fill any undercut, and extend across the floor of the cavity and

slightly overlap the cervical border. In shallow cavities one cylinder, of a size so large it will barely pass through the orifice of the cavity without being torn or disintegrated, will sometimes accomplish this, but in many cases it will require two or three cylinders before a sufficient bulk of non-cohesive gold is obtained. When the required amount is in position, a smaller cylinder of cohesive gold as annealed as thoroughly as can be done without melting the outer layers of foil, and this is placed upon the uncondensed non-cohesive gold. A plugger point, shaped to conform somewhat to the walls of the cavity, is then brought down upon the cohesive cylinder, and force by hand pressure is exerted to drive the mass directly toward the cervico-lingual corner. This wedges the gold firmly into the angle of the cavity. The non-cohesive is irresistably carried before the cohesive, and is adapted to the walls without being punctured and squeezed out of the cavity, as would be the case if the plugger point were brought directly upon it. The cohesive cylinder, when thoroughly annealed, forms an impenetrable mat against which the plugger may be pressed with sufficient force to ensure adaptation and condensation, without breaking up the mass of gold into fragments. The cohesive gold is carried into the substance of the non-cohesive, and lends solidity and stability to the first portion of the filling. The only means by which these first pieces of non-cohesive gold can be condensed independently of the cohesive cylinder without danger of disintegration, is by the use of broad-pointed pluggers, and with broad pluggers there is no assurance that adaptation is perfect in undercuts or grooves. The spreading qualities often attributed to non-cohesive gold must not be depended on to any appreciable extent. It is probably safer to assume that gold, whether cohesive or non-cohesive, will go only where it is forced to go by definite and direct pressure, than to depend on a lateral moving of the mass when the plugger point is brought to bear squarely upon it.

When the first pieces of gold are anchored in position it will be found that the cervico-lingual corner of the cavity is well covered over, with the gold extending further along the cervical than the lingual border. It is sometimes necessary to use two or even three cylinders of cohesive gold to overlie and protect the non-cohesive, but no cylinder except the first should be annealed to a high temperature. The object of high annealing in the first

cohesive cylinder is to obtain a mass of gold the layers of which will weld on the slightest pressure, so that when the plugger point is brought against it the layers cling together so tenaciously that great force may be exerted without puncturing it. This quality not being so necessary in the succeeding cylinders, they are rendered only semi-cohesive.

When the filling has progressed thus far in the ordinary cavity of a bicuspid, it will usually be found that the gold extends more than half way across the cervical wall in the direction of the buccal wall. The conformation of the cavity viewed at this stage of the operation shows a decided depression at the cervico-buccal corner, and into this depression a cylinder of non-cohesive gold is placed, in the same general arrangement as with the first cylinder in the cervico-lingual corner. The end looking toward the lingual wall slightly overlaps the gold already in place, while the other end will curve toward the occlusal surface along the cervical third of the buccal wall. The same plan of anchorage is followed here as with the other corner, a retaining instrument being held firmly against the condensed portions of gold to keep the mass from moving while the process of wedging between buccal and lingual wall is progressing. When the span is made between these two walls and the gold thoroughly condensed along the whole cervical outline, and by the cervical third of the lingual and buccal walls, we have a firm foundation for the filling, which, if the cavity has been properly formed, cannot be tipped or dislodged in any way by mallet force during the subsequent process of the operation.

Up to the time when the connection is fully made between the lingual and buccal walls, and the cervical outline well covered, a mallet of any kind is ordinarily contra-indicated. Hand pressure vigorously exerted in the proper direction, will ensure good adaptation, with less danger of injury to margins. After the floor of the cavity is covered, a mallet should be used to complete the condensation. The first blows should be struck midway between the buccal and lingual walls, and the plugger point carried in either direction from the center towards the walls, the last blow coming on the gold immediately overlaying the walls.

The cavity is now filled about one-third full. A cushion of non-cohesive gold covers the margins, while solidity is secured by a layer of semi-cohesive gold over it. The filling is slightly

higher along the buccal and lingual walls than in the center, while the whole mass is firmly anchored in place. The most difficult part of the operation is completed, and the process from now on consists merely in building back and forth between buccal and lingual walls. This, for the most part, is done with semi-cohesive gold, but at any point of the cavity where there is a decided undercut or groove, a cylinder of non-cohesive gold should be laid into it and driven to place with a smaller cylinder of cohesive gold. As the surface of the filling is being reached, and all margins are protected, the gold should be annealed thoroughly to gain the benefit of its greatest cohesive properties.

When the occlusal portion of the cavity is approached a definite plan of anchorage should be followed to insure firmness of the filling at this point. If the groove running between the cusps and leading to the depression near the opposite marginal ridge is deep, a cylinder of non-cohesive gold should be laid in it with the ends looking mesially and distally. A cohesive cylinder should be placed on this and thoroughly condensed into it, the end of the latter overlapping the cohesive gold already in place. From this point to the completion of the filling, the gold should be made as cohesive as possible. Where the groove is shallow cohesive gold should be used throughout the entire occlusal portion of the filling. In case the depression near the opposite marginal ridge dips into the dentine much deeper than the groove between the cusps, it should be filled with non-cohesive gold nearly to a level with the floor of the groove before any gold is placed in the groove itself. In these cases the groove is usually shallow, and we now have two sections to the filling—the main body in the proximate cavity, and the smaller piece in the depression on the occlusal surface. A cylinder of cohesive gold is then placed in the groove, with one end overlapping the distal section and the other the mesial, and condensed so as to bind the two portions together. Gold thoroughly annealed is used to complete the filling.

It will be seen that the general arrangement of the different forms of gold in a filling of this kind is as follows: Non-cohesive gold lines the cervical portion of the cavity and fills any deep depressions or undercuts, semi-cohesive gold forms the bulk of the filling, while a decidedly cohesive gold covers the surface.

The selection of plugger points for this method of filling is

important. The question of form cannot be treated upon in this paper, but a word might be said as to serrations.

For the purpose of fastening the first pieces of cohesive gold into the substance of the non-cohesive, pluggers with deep serrations are called for. Deep serrations secure the interlacing of the layers, and result in a more stable union between the two forms of gold than can be accomplished with shallow serrations. In the process of building up the filling with semi-cohesive gold when we are simply adding piece unto piece to the main mass to increase its bulk, and not working around margins, deep serrations are indicated on the same principle. But in condensing over margins deep serrations are dangerous, on account of the tendency to puncture the gold and injure the enamel borders. Shallow serrations should be used along all margins. As the surface of the filling is approached and the gold is rendered more cohesive, the necessity for deep serrations passes away, and the best results are obtained by using shallow serrations. When the last piece of gold is in place, condensation may be completed with pluggers having no serrations

The statement just made with regard to deep serrations applies only to hand pressure, the hand mallet, or automatic mallet, With the engine, electric, or any of the rapid acting mallets, deep serrations are contra indicated.

In the present paper only one form of filling has been described. A detailed description of the methods to be followed in the different classes of cavities would extend the paper beyond the limit assigned to it.—*Dental Review*.

CORRESPONDENCE.

CHICAGO LETTER.

THE Columbian Dental Congress has met and its doings are now a matter of history. That it has been successful in the largest degree no one who attended its sessions can doubt for a moment. In point of numbers and interest it has not been excelled by any of the dental congresses of the world, nor by any of the previous congresses held under the auspices of the Columbian Exposition. The foreign representation was large, twenty-nine

different countries being represented, and the courteous and complimentary remarks made by them regarding the meeting, and the reception given them must have been very gratifying to those who worked so hard to make the congress a success. The members of the dental profession who remained away from the meeting missed such a treat as will probably never again be accorded them.

On Wednesday evening, August 9th, the Columbian Dental Club gave a pleasant informal reception to the visiting members of the congress and their wives. It began the cordial feeling which seemed to exist during the entire meeting of the following week, and served admirably the purpose of making all acquainted. Songs and recitations, by members of the club and their wives, and light refreshments formed a part of the program of the evening.

Saturday evening, immediately preceding the meeting, a more formal reception was given, at Kinsley's, by the members of the Chicago Dental Society, the Chicago Dental Club, the Odontological Society, the Atkinsonian Dental Society, and the Hayden Dental Society, in honor of the officers and members of the World's Columbian Dental Congress, the American Dental Association, the Southern Dental Association, the National Association of Dental Faculties, and the Delta Sigma Delta Fraternity. Between two and three hundred members of the different bodies named above were present with their ladies, which made a beautiful opening scene for the following week. This, too, was thoroughly enjoyed, the foreign guests being present aided in making the affair a most cosmopolitan one. Here again old friendships were renewed and new ones formed, until it was announced that the Sabbath must put an end to the merry-making. To this meeting as much as anything must be given the credit for the spirit of harmony which marked the workings of the congress during the following week.

Sunday was passed quietly and marked only by the number of quiet reunions of old friends. The Columbian Dental Club practically kept open house and made the day pass pleasantly for the visitors.

On Monday morning, August 14th, the event for which the dentists had worked so assiduously for so long a period was opened with prayer by Dr. J. Taft, of Cincinnati. President

Bonney, of the World's Congress Auxillary, then welcomed the dentists in well chosen and complimentary language, after which he resigned the care of the congress to Dr. W. W. Walker, the chairman of the General Executive Committee, who in turn introduced Dr. L. D. Shepard, the president of the congress. Following this the various officers of the congress were presented. The resolutions creating the congress were read by the Secretary-General. Owing to the absence of the orator of the day, the Hon. John Temple Graves, of Georgia, on account of illness, Dr. J. Y. Crawford, of Nashville, Tenn., gave the address in his stead. Dr. L. D. Shepard then delivered the president's address. This was a most masterly production. He traced the history of dentistry, in America, from its beginning, in 1839, down to the present time, and noted the more important achievements of dentists which have been era-markings. The address will bear careful and earnest reading. The delivery no less than the matter of the address, testified to the wisdom of those who selected the presiding officer of the congress. This quiet dignity of the man and his address marked all the general sessions.

After the president's address, the various foreign representatives were received in tactful language by Dr. Shepard. Each one responded in the language of his own country, which was interpreted by some of the members. Each response showed the deep interest which has been taken in the congress from all over the world.

Letters of regret were read from various members of the profession all over the world, who had been unavoidably detained at home. Among these was noted more particularly that of Dr. Evans, who was compelled to remain away on account of the home which he is building for American girls who study music in Paris. The morning session was then adjourned until the following day.

This opening session must have been an inspiration to every member present and a stimulus to new endeavor that the usefulness of dentistry might be extended, when he noted what has been done and is being done by earnest workers the world over.

The congress now settled down to work in its various sections. The morning sessions were usually meetings of the entire body, and met at noon of each day. The sections met in the various rooms of the Art Institute at 2.30 o'clock. The clinics

were held each morning from 9 until 11.30 o'clock, at the Chicago College of Dentistry. All of the meetings were well attended. The interest in the work of the various sections was maintained to the last, and even in those sections in which the more abstruse and less practical subjects were presented, the attendance and interest seemed unusual, thus controverting the prevalent idea in regard to the intelligence of the average dentist.

Evening sessions were held in which lantern exhibitions and lectures on scientific topics filled up the time.

The clinics were exceedingly interesting and must have proved of great value to those interested in the more practical work of dentistry. Electrical appliances of all kinds were on exhibition, but that of Dr. L. E. Custer, of Dayton, Ohio, which is not for sale, was so complete and compact that it attracted great attention.

Dr. Geo. Cunningham, of London, Eng., gave an interesting demonstration of low-fusing porcelain bodies and enamels, which seemed to be thoroughly appreciated.

Dr. Bryan, of Basle, Switzerland, performed an operation for the immediate regulation of a right lateral incisor, which also attracted marked attention. Various new appliances, new operations, and new medicines were offered in such an array that it would be impossible to mention all. It can only be said that those who were not there missed a great deal.

During the week several pleasant reunions were indulged in by alumni and the various colleges. Notably among them being the banquet of the graduates of the University of Pennsylvania, on Thursday evening at the Pullman building, and the meetings of the alumni of the University of Michigan, Thursday morning, in the rooms of the Delta Sigma Delta fraternity, at the Hotel Brunswick. Some misunderstanding existed in regard to the latter meeting, owing to two notices being sent out—a part of the members finding their way to the Michigan building, at fair grounds. A goodly number assembled at the former meeting place and reminiscences were indulged in, Drs. Taft and Watling leading in addresses.

During the meeting of the congress, the Delta Sigma Delta fraternity increased its membership. Dr. Shepard, of Boston; Dr. Cunningham, of Cambridge, Eng.; Dr. Weeks, of Minneapolis; Dr. Dabold, of Paris, France; Dr. Grevers, of Amsterdam,

Holland; Dr. Burne, of Sydney, Australia; Dr. Younger, of San Francisco; Dr. Carleton, of San Francisco; Dr. Moore, of Columbus, S. C.; Dr. Morgan, of Nashville; Dr. L. E. Custer, of Dayton, O., being honored by having their names added to the roll.

Saturday the closing session of the congress was held at eleven o'clock, the final papers read, and the prize medal for the best essay on Oral Hygiene, awarded to Dr. Geo. Cunningham, of Cambridge, England.

The work of the congress was then closed by a short address from President Shepard.

The social feature of the week was the banquet to the foreign members at the Chicago Beach Hotel, at which three hundred persons sat down. The American members remained quiet and listened proudly to the kind words of the representatives from foreign lands.

The responses partook more of the nature of a praise meeting than anything else. Dr. Cunningham, of England, indulged in some pleasant reminiscences of the Berlin Congress, and supplemented them by stereopticon views of certain incidents, including the participants, which occurred at that time.

The remarks of all the speakers were so happy and courteous in their appreciation of the work of American dentists in general and of those interested in the congress, that each and every one blushed modestly at their expression.

We must not forget the luncheon given by President Shepard to the officers of the congress and the foreign guests, which was held Saturday afternoon in the banquet hall of the Terminal Station at the "World's Fair." About one hundred and fifty guests were present and enjoyed the good cheer which President Shepard had provided. As a finale to courteous and dignified conduct of Dr. Shepard, nothing could have been more pleasant and fitting.

The congress is now a thing of the past; its work is history. But what has been done will be scattered as seed to the ends of the earth, to be reproduced twenty, fifty, yea, an hundred fold. The memories will be pleasant ones and marked by none of the discords so often found in such gatherings.

ANON.

EDITOR'S NOTES.

AS VIEWED BY OTHERS.

THE journal of the British Dental Association, referring to the recent action of the General Medical Council with regard to the American universities, says: "The General Medical Council have, as the outcome of much patient enquiry, conducted with the assistance of expert opinion, concluded that the privilege of registration, hitherto conceded to the graduates in dental surgery of Harvard and Michigan Universities, must be at least suspended, and probably withdrawn altogether." These two universities were recognized at the passing of the Dentists Act because they were the best of the American colleges, and it was felt that their curricula would improve as they went on, and that they might ultimately reach the high level required by the Colleges of Surgeons in this country. This has not been the case, and the General Medical Council has just decided not to allow foreigners to obtain the privileges of registration upon easier terms than British subjects. Before taking action the Education Committee of the Council was deputed to investigate the question most carefully, and it reported that the requirements of those colleges do not meet those exacted from our own students either in the preliminary or subsequent examination, or in the length of period of study enforced. It may be said that the course of education for a dental surgeon in this country is in all respects superior to that of American colleges. It is to be hoped, therefore, that the action of the General Medical Council may stimulate our trans-Atlantic friends to raise the standard of dental education in America.—*British Med. Journal.*

The *Cincinnati Lancet Clinic* (medical) comments on this action, as follows:

"The above piece of bombast aptly illustrates the assurance and downright ignorance that exists in certain foreign quarters.

There is no class of men that has such acknowledged skill in the perfection and character of their work as American Dentists; and we venture the assertion that the educational work done in the Cincinnati and other American colleges of dentistry is much superior to that done in any London college.

We are absolutely tired of this cant pertaining to any imagined superiority of what don't exist in certain quarters.

American physicians have recently been to some unasked for and unwanted foreign advice in regard to the American physician's Code of Ethics, with a gratuitous promise of more to come from the same quarter. Unfortunately there does not exist in England, you know, a written Code of Ethics of any kind. When such an instrument is written, its first section should treat sternly of the impoliteness of an invited guest's uncalled-for criticism of his host's family affairs.

The teaching of young men and young women the art and science of medicine, and the practice of medicine, are industrial occupations of special and peculiar interest to those engaged in their pursuit: and it is the province of every government to enact and enforce laws for not only the protection of its citizens from disease and discomfort, but from foreign discrimination.

The several State authorities should read the above and take cognizance of it by forbidding holders of foreign diplomas to practice medicine or dentistry within their State limits. In this way the doctrine in political economy known as reciprocity and protection in trade may be carried out to its point of greatest usefulness. Here and there may be found single individuals holding foreign diplomas, whose professional standing is unquestioned and unquestionable. These gentlemen are our friends. They are with us as professional and social equals. In good faith they accept the American situation and adapt themselves to the conditions of environment in which they are placed. Such gentlemen are not found or heard carping at the character of the American diploma or the American Code of Ethics. An American home and citizens' papers set their mind and eyes straight on this as well as many other subjects, about which some foreigners stand up and look solemn.

We want our state legislatures to adopt measures that will enforce the doctrine of reciprocity and protection in regard to the practice of medicine, pharmacy, midwifery and dentistry."

COLUMBIAN CONGRESS NOTES.

THE section meetings were well attended and the papers presented were, in the main, creditable. While all might have been

read and discussed in open session, so far as attendance was concerned, it would have been impossible to properly present all of the papers and no one would have relished having his paper, *read by title only*. The arrangement, everything considered, was the best that could have been made and much credit is due the various committees for the faithful work they performed.

The clinics were interesting and there were probably very few in attendance but that were benefited by them, notwithstanding the fact that the clinic room was inadequate.

The social feature of the Congress was a grand success and the opportunity alone of meeting old acquaintances and forming desirable new ones, amply repaid many for attending.

The Chicago dentists deserve a hearty vote of thanks for their hospitalities during the days of the meetings, and the enterprise of the *Review*, *Cosmos* and *Tribune*, in issuing excellent daily editions, surpassed anything before known in dental journalism. Are we progressing? Perhaps (?) we'll catch up with our English brethren some day.

The visionary idea that American dentists intended to show their superiority over English contemporaries, and invited them here for the purpose of proving their equal standing or superiority, was totally annihilated and we hope the cordiality and friendliness shown all foreign dentists will be a lesson to some of the "doubters" and have the effect of infusing into them something besides such senseless and preposterous ideas of jealousy and rivalry.

DELAYED.

ON account of accumulated dental society material, of special interest and importance, we have been obliged to hold over our usual "All Sorts" and other condensed matter, intended for this issue, until next month.

NEW PUBLICATIONS.

CLIFFORD'S MANUAL OF RECITATIONS in Materia Medica, Pharmacy, and Therapeutics. By E. L. Clifford, D.D.S., Prof. General Materia Medica and Therapeutics American College of Dental Surgery, etc. Chicago: Published by the author, 1893.

Sold by S. S. White Co., and all dental depots. Price \$3.00.

In the preparation of this work the object of the author was to supply, in concise form, such facts as will assist and benefit the student in gaining that knowledge necessary for him to have at his command. Dr. Clifford has certainly presented this subject in a concise and admirable form, displaying excellent judgment in the selection of questions and in answering them so that they can be readily comprehended.

While we do not personally favor the exclusive use of the question and answer system in college work, upon this branch particularly, it is a valuable adjunct, and this work is, in our opinion, the best yet published on the subject and should be not only in the hands of every student of dentistry, but in the office of the practitioner as well. While there is little to criticise in the book there is much to commend. It has been approved by the Association of Dental Faculties and recommended as a text-book in the Colleges.

THE RISE, FALL AND REVIVAL OF DENTAL PROSTHESIS. By B. J. Cigrand, B.S., D. D. S., Professor of Dental Prosthesis and Metallurgy in the American College of Dental Surgery, etc. Second edition, revised and enlarged. Chicago: Published by the author, 1893.

The second edition of this work appears in an enlarged form now containing 316 pages. Dr. Cigrand is very pleasing in his expression and the reader at once becomes interested in the book. He has lucidly portrayed the history of Egyptian, Hebrew, Chinese, Japanese, Phœnician, Arabian, Grecian, Roman, Etrurian, European, French, Dutch, English, German, Austrian and American Dental art, and treated on Dental Prosthesis, Fall and Revival of Dental Art, American Dental Education, Literature, Periodicals, Artists and Scientists, Mechanical Dentistry, etc.

In our limited space we cannot give a comprehensive review of the work, but would recommend it to our readers as the most complete and valuable treatise on this subject yet published.

BOOKS RECEIVED.

Outlines of Practical Hygiene, by C. G. Currier, M. D. E. B. Treat, Pub. N. Y., 1893. Price \$2.75.

BRIEFS.

— Izal is a new proprietary English disinfectant, probably of the same class as sapocarbolic, cresol, lysol, etc. According to the *Chemist and Druggist*, however, it contains no phenol.

— I think aluminum, as it is now manufactured pure, is an excellent substitute for rubber. About twenty-two gauge is very nice to work. It is easily swaged, and preferable to rubber.—*L. P. Haskell.*

— Rust stains on instruments may be *removed*, it is claimed, by painting them with a mixture of one part of potassium cyanide, one part of soft soap, two parts of prepared chalk, and enough water to make a paste, and then wiping the instruments and coating them with oil.

— Syringes, whose canals have become obstructed so that a fine wire cannot be drawn through, are cleaned by holding them a moment over a flame; the foreign substance is thus quickly destroyed and driven off. If a wire has been rusted into the needle it should be dipped in oil before holding over the flame. To remove the rust from the interior of the canula, it is well to pass oil through the canula then heating it, then rinse it out with alcohol.—*Brief.*

SOCIETIES.

ALUMNI MEETING OF THE DENTAL DEPARTMENT OF MICHIGAN UNIVERSITY.

A CALLED meeting of the alumni of the Dental Department of the University of Michigan, was held at Hotel Brunswick, Chicago, August 17, 1893, in the parlors of the Delta Sigma Delta fraternity.

M. F. Finley, of Washington, D. C., class of '78, was elected president, and U. D. Billmeyer, of Chattanooga, Tenn., class of '80, was elected secretary.

The following members registered: V. H. Jackson, Marie

Thompson Bacon, D. M. Cattell, L. N. Seymour, T. J. Mason, R. M. Paine, T. W. Beckwith, H. F. Harvey, E. D. Brower, M. A. Mason, Geo. H. Wilson, L. L. Barber, Chas. A. Eckert, L. P. Bethel, W. Cleland, Helen L. Searle, Vida A. Latham, May Weston, J. W. Wassell, E. Phillips, Geo. J. Dennis, Chas. F. Noyes, P. J. Kester, John A. Watling, U. D. Billmeyer, J. W. Youngman, C. E. Meerhoff, G. H. Copp, J. C. St. John, Wm. Donnally, W. H. Whistlar, J. Taft, L. L. Davis, M. F. Finley, W. Mitchell, May Cleo Smith, Thomas C. Leiter, Ida Gray.

Very interesting addresses were made by Drs. V. H. Jackson, J. A. Watling, J. Taft, M. F. Finley, Marie T. Bacon, P. J. Kestler, and others. After a general handshaking and exchange of greetings, the meeting adjourned to meet at Old Point Comfort, next year, at the time of the meeting of the American Dental Association.

U. D. BILLMEYER, *Secretary*.

OUR AFTERMATH.

THE dental office of Dr. W. H. Spaulding, of Bedford, O., was burned on September 7th. Loss, \$1,000. Insurance, \$200.

THE heavy work of the world is not done by men who eat the greatest quantity. Moderation in diet seems to be the prerequisite of endurance.

PEANUT-FLOUR has been introduced into Germany as a food, containing nearly 50 per cent. of albumen. Nordinger pronounces it the most nutritious and cheapest food in existence.

"APPLES OF GOLD IN PICTURES OF SILVER."—That is a perfect description of a beautiful young lady's mouth with diamonds in her teeth. They sparkle like polished silver in clear crystal water. On Tuesday I called at Dr. —'s office. He was setting small diamonds in gold crowns for a young lady of this city. To say they were beautiful does not express it. They were perfectly exquisite; magnificent in the extreme. Columbus is up to New York in the dental profession, certainly.—*O. State Journal*, Sept. 9, 1893.

THE GERM THEORY AN ANCIENT ONE.—Although the germ theory is thought by many to be of recent origin, it was, in fact, advocated over two hundred years ago. In 1657 Athanasius Kircher, a priest of the Society of Jesus, set forth the ideas now prevalent in regard to the bacterial origin of disease. He, however, had never seen these germs, the microscope being still undeveloped. Micro-organisms were first observed by a private citizen and non-medical man, Leeuwenhoek, of Delft, Holland, in 1675. He made no attempt to define their properties, but simply examined and described them. In many cases his descriptions and drawings have not as yet been excelled.—*Annual Med. Sciences*.

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CONTRIBUTIONS.

ORAL SURGERY.

CASES FROM THE CLINIC OF THE OHIO COLLEGE OF DENTAL SURGERY.

BY WM. KNIGHT, M.D., D.D.S., CINCINNATI, PROF. OF ANATOMY AND ORAL SURGERY.

CASE I.—On February 23d, 1893, F. Donovan aged 22, called at the College Infirmary, holding a handkerchief to his face. An examination showed a fistula of Steno's duct, far back near his ear. The cheek upon the affected side was thickened and discolored, and had extending across it a purple line, the edges of which were marked with small depressions showing the points where fourteen stitches had been removed. A colorless fluid trickled slowly down the cheek. Upon examining the mouth a slightly dry mucous membrane, with an indurated line corresponding with the surface one was seen.

He stated that five weeks before he was in a saloon at Chicago, when some man unknown to him, cut him suddenly across the face. He was removed to a hospital where his wound was sewed up. When he left the hospital on the twelfth day, the cheek was swollen, although the wound, with the exception of a small

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place near the ear from which a little matter came, had healed. A few days after leaving the hospital a constant dripping of fluid, which greatly increased at meal time, caused him much annoyance, and his mouth on the injured side always felt dry. He was kept under observation for three days before treatment. It was found that a glass of beer would produce a more abundant flow of saliva than any other substance tried.

On February 27th, he was brought before the class and assisted by Dr. H. T. Smith, the operation, consisting of passing a large straight needle carrying four thicknesses of well waxed silk ligature diagonally through the cheek into his mouth was made. The point of entrance of the needle being at the bottom of the sinus near the ear; the point of emergence on the mucous membrane near the upper second molar. During the operation the patient complained of but slight pain. The patient was seen daily for a time, and on each occasion the ligature was moved slightly. On the twelfth day after the operation the cheek which had nearly resumed its normal color, began to swell again and a small abscess formed which was opened internally.

From now on the case improved rapidly, and on the nineteenth day the ligature was removed. At the present writing the cheek has regained its normal size and color, and the only evidence of any past trouble is the long scar across his face.

REMARKS.

Of the various operations devised for the relief of this affection, that of passing a well waxed silk ligature through the cheek, and allowing it to remain for a sufficient time, will answer in most, if not in all cases. The use of the tent as practiced by Dr. Garretson appears to be needless, and results sometimes in the formation of quite a channel, which in itself is annoying and may lead to considerable puckering of the mucous membrane. This same puckering has followed the strangulating method by a double ligature. The silver ligature used in the same way is preferred by those operators who object to the irritating properties of silk, and who claim this property is not entirely overcome by waxing the ligature.

CASE II.—On November 30th, Dr. E. G. Logan of Middletown, Ohio, consulted me in regard to Mr. D——. The patient, a tall, large-boned young man, with heavy-set, thick features, dull

expression and a marked impediment in his speech, sought relief of a chronic mouth affection. An examination of this cavity revealed an interesting condition. The teeth were large, the upper molars were imbedded partially in an excessive growth of gum tissue. This hypertrophied mass consisted, in the main, of two pear-shaped growths extending one on each side of the upper jaw from the first bicuspid backwards beyond the posterior border of the hard palate, pear shaped in form with the large end behind. They left but a narrow interval between the molar regions. Besides these two masses, the gum tissue of the incisor regions of both jaws was considerably thickened. This excessive growth interfered materially with distinct articulation.

He stated that he could not remember when he first noticed anything the matter with his mouth. It had been coming on for a long time. During the last two years it had been giving him more and more trouble. Whenever he caught cold the swelling became larger and would almost choke him. His knowledge of his family history was limited, no member of the present family, as far as he knew, had any similar complaint.

An operation was advised, to which he readily assented. On December 16th, 1892, he was put under chloroform at the Good Samaritan Hospital in the presence of the class of the Ohio Dental College. With the assistance of Drs. H. A. Smith, H. Cundell-Juler, Grant Mollyneaux, and H. C. Matlack, the two large masses were removed. The hemorrhage at one time was free, requiring the use of the thermo-cautery. In a previous consultation it having been decided desirable to have the upper two posterior molars removed, this was accordingly done at the same time. Mr. D. made a favorable recovery. He presented himself before the class a month afterward. His speech was free and his general appearance much more cheerful.

CASE III.—On February 3d, 1893, Mr. James M——, of Springfield, Ohio, consulted me in regard to a growth in his neck.

The patient, a small, nervous young man, aged 20 years, appeared depressed and melancholy. An examination of the tumor showed a hard rounded growth, divided partially by a slight groove into two unequal parts. The growth appeared to spring from the inner surface of the lower jaw,—it extended from this point to below the cricoid cartilage, and pressing behind was

covered by the sterno-mastoid muscle. The skin over the tumor was of normal color, and was not attached at any point to the growth. The tumor was movable at all points except from beneath the jaw. He gave the ordinary history of affections of this character. It had been of slow growth and only during the last year had he suffered from much pain. This being due no doubt to the pressure caused by the increasing growth of the tumor.

With considerable hesitation he consented to an operation; an unusual fear seemed to possess him. On February 14th, in the presence of the class he was placed under chloroform at the Good Samaritan Hospital and with the assistance of Drs. H. Cundell-Juler, H. A. Smith and the Internes of the hospital the growth was removed. The hemorrhage throughout the operation was slight; several large veins were exposed, a small portion of the tumor extending under the sheath of the common carotid artery and veins gave some little difficulty, as did also its attachment to the submaxillary gland and periosteum of the lower jaw. After the removal of the growth, a large gap containing pulsating arteries and turgid veins, was seen.

The patient made a good recovery. On March 13th, a small nodule, the size of a pea was to be felt under the skin. At the present writing this has disappeared and he is in good health and spirits.

Upon examination the tumor proved to be a fibro-enchondroma. In size three and one-half inches in length—in breadth at its widest point, two and one-half. Weight half a pound.

RUBBER AS A BASE FOR ARTIFICIAL DENTURES.*

D. C. HAROLD, D.D.S., ELWOOD, IND.

RUBBER as a base is good, in fact the best of all so-called cheap bases, but it has been made too cheap by a majority of the profession; so cheap, in fact, that I care not how well a man may know how to use it, he can not afford to spend the time, and give it the care that he ought to, to get good results. I will venture the assertion that out of the thousands of rubber bases worn, not three per cent. are fit to be worn.

No man can make a decent, or a half-way decent plate and

* Abstract of a paper read before the Indiana State Dental Society, 1893.

vulcanize it between plaster casts ; it will be porous and filthy in a very few days ; it is the means through which to carry disease and death to those who wear it. Now I know that this is putting it too strong for some ; nevertheless it is true. There are men who say there is no such thing as rubber sore mouth. Now what makes so many sore throats and mouths ? I have had two cases on my hands where the persons have worn rubber plates, one for six the other for eight years. The plates fit the mouth fairly well, in fact as good as the average, and were made by good dentists ; in these cases both have suffered with sore throat for some years, and have been treated by several different physicians, but without any marked benefit. Finally a local physician sent me a note with the patient to see if her plate fit properly, and on examination I found a very good fit, but the mouth and throat in a bad condition, the throat red and badly swollen, the palatine portions of the mouth covered with splotches, very red center, but with a bluish tinge at outer edge.

I gave it as my opinion that it was rubber poison in both these cases, and I believe I was right for both were cured, as have been several other cases since then, by removal of the plates for a few months, with local washes. After getting well, in three cases I replaced their rubber plates with continuous gum plates ; in four I placed rubber plates lined with gold ; in one case, where the red splotches appeared on the face and affected the eyes, I placed a gold plate.

In all these cases there has been so far no recurrence of the disease. Now I believe it was rubber poison, because I found the plate under a magnifying glass to look something like a fine sponge, with all the things in it that Noah had in the ark, and this after it had been thoroughly washed. This state of affairs was caused by the plate not being hardened, and being porous, but to the naked eye no porosity could be discovered.

I believe that if the plates had been properly made there would not have been trouble. It was therefore not the fault of the rubber, but the fault of the workman. If you have a porous surface next the mucous membrane you are likely to have trouble.

A rubber plate can be made properly only between metal dies. I care not how careful a man may be with plaster casts, he cannot get that hard vitrified surface on plaster that is necessary to the comfort and well being of the patient. Rubber should

not be scraped or filed, but should be ready to polish with the brush when it comes from the vulcanizer. When we can and will take this care in our work, rubber is a good base, and when we take this care, with a good rubber to start on, we will never see or hear of a case of rubber poison.

Never put so-called air or suction cavities in any plate; they are never called for, and are the cause of a great deal of trouble and inconvenience to the patient and mortification to yourself. A plate should be thin and even throughout to get good results. How many of us have seen plates that contained enough rubber to make four good plates; in fact how many of us have not and are still making such blunders every day.

A good rubber plate requires cleanliness and precision throughout, from the impression to the finishing. If we use proper care and good judgment we can make a plate with rubber that is good, clean and healthy, but if it is not made right it is the worst thing, the dirtiest, most stinking, unhealthy, disease-breeding base that we can use.

A CASE IN PRACTICE.

BY W. M. JENNINGS, D.D.S., CLEVELAND, O.

SOME time ago, a patient (a young man) came to my office with a mouth full of bad teeth that he wanted put in good condition. Among them was the first upper right molar, with simply the buccal wall standing, and the palatine root decayed well up under the gum, this he also wanted saved if such could be. The condition this tooth was in, the only thing I could see to be done, that would give him any use of it, was as follows: I made a band, fitted it so as to hug the buccal surface of the part of the tooth left standing, and trimmed it so as not to crowd on the gum in any place; I then soldered on to the part lying next to the gum, a floor (allowing just enough opening to let the remaining portion of the tooth to pass through) and letting it extend about 3-16 of an inch beyond the palatine portion of the band, making the lower edge bend in considerable, and also rounded the extended part of the floor so as to fit the gum perfectly. I then finished and polished it and it was ready for setting. Before setting however, I carefully prepared the tooth and filled the roots and pulp chamber with soft gutta-percha.

Having placed the band in position in the mouth, with some cement on the buccal surface of the tooth, I burnished a small piece of tin-foil on the inside, between the tooth and the edge of the floor. I then filled it with amalgam, using an engine burnisher of the proper size, and revolving quite rapidly, for packing it; then I laid a piece of Robinson's Fibrous Foil on the surface of the amalgam and rubbed it over with a warm hand burnisher, to absorb all excess of mercury.

Before leaving, however, I cautioned him not to use for three or four hours at least, so as to give it plenty of time to get thoroughly solid. The tooth is giving entire satisfaction.

WORLD'S COLUMBIAN DENTAL CONGRESS.

(Special Report for THE OHIO DENTAL JOURNAL, by Mrs. J. M. Walker and assistants.)

Continued from page 492.

SECTION IV.—THERAPEUTICS AND MATERIA MEDICA.

The first paper on the list, for this Section, entitled

A METHOD OF INDUCING LOCAL ANÆSTHESIA BY COCAINE.

D. CARACATSANIS, M. D., Athens, Greece.—You are all acquainted with the danger of cocaine-injections for the painless extraction of teeth. Its narcotic effects are surprising, but unhappily they are frequently followed by untoward consequences; even loss of life has occasionally resulted. At the Dental Congress in Paris animated discussions arose on this subject. Since then I undertook some experiments to determine whether some procedure might not be substituted for injection, some milder method for the induction of local anæsthesia by means of cocaine.

I proceeded on the basis that if its effects could be completely localized, cocaine would answer perfectly. Such a method I have found; I have applied it practically for several years. The patients have nothing to complain of, not even the slightest indisposition. Accordingly it is with the greatest confidence in my method that I lay it before you. The operation is simple, within the power of every one; its only imperfection is that its application demands considerable time; sometimes as much as three-quarters of an hour is required for complete anæsthesia. The procedure is as follows: I begin painting the gum, next the tooth

to be extracted, with a steel instrument wrapped in cotton dipped in a solution of phenic acid, 2 to 1000, which I have heated. This followed by the application of the salt of cocaine by means of a pledget of cotton impregnated therewith. As soon as the gum shows signs of insensibility, I commence to separate it slowly from the tooth by means of a bistoury. I insert into the space thus effected pledgets of cotton impregnated with cocaine as before. As the anæsthesia advances I enlarge the opening to a depth of one centimetre, on the buccal as well as on the lingual surface. I direct the patient to abstain from swallowing the saliva, to avoid all absorption of cocaine. I take good care not to forget the cotton pledgets placed between the gum and the tooth.

After assuring myself by strongly making pressure on the parts with a steel instrument. I have my assistant to spray the parts with a mixture composed as follows:

Chloroform, 25 grams;
Sulphuric ether, 40 grams;
Menthol, 3 grams;
Cocaine, 1 gram;
Essence of mint, 1 gram.

I extract while the parts are being sprayed. The resulting anæsthesia is absolutely complete; the only condition in which I have failed to produce it being the existence of inflammation or periostitis.

To convince you thoroughly, I am prepared to make the experiment with my method before your honorable Congress.

DR. ROBERTS spoke of the favorable results he had obtained in the use of tropacocaine, producing longer and more thorough anæsthesia, practically without any unfavorable symptoms, from a 2% solution. The greatest objection to its general use is its cost, 20 cts. per gram.

DR. SEYMOUR uses two drops of a 20% solution hydrochlorate of cocain and one drop of Merck's carbolic acid, and as a local application, for five to ten minutes, by the use of which he is able to extract teeth without any perceptible pain.

DR. ROBERTS considers from a 2% to a 4% solution of cocain, anticeptisized with chloral, practically safe, and absolutely instantaneous, judged by his own experience in between two and three thousand extractions.

At this point Dr. Caracatsanis was introduced and re-read

his paper, followed by the Chairman, who in the absence of Dr. Anthony Bleichsteiner of Graz, Austria, read his paper on

COCAIN INJECTIONS FOR THE PRODUCTION OF ANESTHESIA.

DR. BLEICHSTEINER spoke of the paper on the same subject which he read before the International Dental Congress, Paris, 1889, in which he summed up the results of over 4000 injections of 5% solution of cocaine hydrochlorate. The present paper sums up his conclusions after more than fourteen thousand injections, using only the 3% solution since March, 1892, with corrosive sublimate for the sterilization of the solution. He says,

At first I renewed the solution immediately before every injection, but when I came to execute every extraction with cocain anesthesia, I prepared the cocain solution in quantities of ten grams fluid each, and I used for the sterilization of the solutions, corrosive sublimate. I took ten grams of sublimate solution, containing one gram of sublimate to five thousand grams of distilled water, and dissolved in it five decigrams as long as I used 5% solutions; now I dissolve in ten grams of the same sublimate solution three decigrams of cocain hydrochlorate, by which I obtain a 3% solution of cocain hydrochlorate. A drop of this solution contains three milligrams of cocain hydrochlorate.

To facilitate the preparation of this exact sterilized cocain solution he uses vials with a wide neck, which will contain ten grams of fluid, exactly. The vial is filled with the sublimate solution already mentioned, 1 to 5000. Then add three decigrams of cocain hydrochlorate, which is weighed in paper cases. By shaking the solution it is made ready for use in a few seconds. The piston rod of the syringe is divided into ten parts, so that one stroke discharges one decigram of fluid, or a drop. The injection needles have different lengths, ten and twenty millimetres respectively, in order to be able to adapt them more easily to the different dimensions of the upper and lower jaws. The method of inserting, or direction of the needle he considers of the greatest importance. He says, if I direct the point too much against the epithelial side the uppermost layer of the epithelium is lifted up by the slightest pressure on the piston-rod, in the form of a transparent blister. Such injections are of no value at all. But if I put the needle too much toward the jaw, then I discover that I have struck the socket. I may press as long as I like and not

get anything out of the syringe. The piston-rod remains immovable, and in trying to overcome the obstacle by forced exertions either the piston-rod or glass cylinder breaks, as I have sometimes experienced. I must therefore hold the syringe after the manner of a writing-pen, and force it between the periosteum and the socket. At this point the injection fluid is pressed by the tension of the periosteum into the bone-tissues of the alveolar wall, and from there into the periosteum. The injection proves to be successful by the gums growing more and more pale, and the formation of a transparent circumscribed blister, which resembles very much a ranula swelling.

Four horizontal and four vertical punctures of one drop each, generally suffice. At the mesial labial papilla of the gums I also inject two or three millimetres distant from the gums, pricking toward the distal-labial edge. If the injection has succeeded well after the first horizontal puncture, of which the growing paleness of the gums is a sure criterion, the next puncture being made in the pale place, it is not felt by the patient.

He said, many authors advise to wait from five to ten minutes after the injection has been made before extracting the tooth. I consider this superfluous for the anesthesia, and I extract immediately after the injection, and to this proceeding I ascribe the circumstance that I have had to experience comparatively very few and very slight accidents.

Intoxication after cocain injections only occur in my experience if of 20 or 10% solutions half or even a whole syringe-ful has been injected. In this case, if the solution be 20%, either one decigram or two decigrams of cocain hydrochlorate has been injected; but with 10% solutions, five centigrams or one decigram of cocain. These are doses which are too high under all circumstances. I only had instances of real intoxications in the beginning of my cocain injections, and so long as I injected such doses. Now, when using only three per cent. cocain solutions, I have, but rarely perceived reflex symptoms, never real intoxications.

With persons of a nervous disposition, the dentist must try to quiet their excitement by showing himself perfectly composed and at ease in order to gain their entire confidence and trust. Having thus succeeded, the whole procedure may be properly executed. With a three per cent. solution one can only experience

nervous reflexes, which, however alarming they may seem, have nothing dangerous in themselves.

In the discussion which followed the reading of these papers

DR. ROBERTS said that he had had analyzed samples of many of the patented nostrums now on the market for "painless dentistry" and found that they all contained from one to three and even five per cent. cocaine antisepticised by means of carbolic acid, so large a proportion of the latter in many of them that sloughing of the gums or necrosis of the process would follow their use. The most recent of these preparations contain a small per cent. of tropa-cocaine. He considers that the main thing now, is as to the effect of the different antiseptics in connection with cocain, because it seems to be absolutely settled that a two to four per cent. solution of cocain will do the work harmlessly.

DR. PRUYN gave the results of his long series of experiments with cocain, locally and hypodermically—of hundreds of cases in actual practice and also his experiments upon the lower animals. As the result he concludes that for hypodermic injection a two per cent. solution with about a half per cent. of salicylic acid to preserve it, answers just as well as a four or eight per cent. solution. He said,

I have used in some cases hot water simply, thinking that possibly there might be something in the pressure of the liquid of the solution of cocain upon the terminal ends of the nerves that had something to do with obtunding, and it has done wonderfully well. I dare not say it is just as good as cocain, but in the few cases I have used it, it has proven that it is worth something. I would like those who are experimenting in this line to try it, and find if we can get any results from it.

DR. CHENEY. I have tried tepid water numerous times, and find it very effective. If the patient does not know the difference, it is just as good as cocain.

DR. PARKER. Isn't that a hypnotic effect? You might just as well use cold water. I would like to hear from some gentleman who has experimented with cocain on abscessed teeth, or one that was abscessing.

DR. FREEMAN, Chicago. I have used it in abscessed conditions, and my results were very unsatisfactory unless I went beyond the line of inflammation; then it proved satisfactory.

DR. PARKER. The only way I have had good results in

abscessed teeth with cocain is to first spray the gum slightly, then inject the cocain thoroughly into it, as the paper states. If you can start at a point, force the cocain along and keep following it up, inserting the needle at the point where it is anesthetized, you can relieve the pain; but if you insert the needle into highly inflamed tissues you will cause the patient more pain by the first injection than you will by the extraction of the tooth.

DR. CRAVENS expressed regret that, so far as heard in this discussion and the papers read, the use of cocain in dentistry would seem to apply only to extraction of teeth. He said,

I hope, Mr. President and gentlemen, that we are not degenerating into a profession of tooth-pullers. Local anesthesia is beneficial for other purposes in dentistry than simply the extraction of teeth. I have had some experience in local anesthesia by the use of cocain in the operation of scraping the roots or operating in the pus-pockets of pyorrhea alveolaris. I apprehend the operation without anesthesia is about as painful and certainly much more protracted than that of extracting a tooth.

My method is to make a saturated solution of the hydrochlorate of cocain in chloroform, making something more than a six per cent. solution after you get the solution saturated. Hot water is necessary in my method. By the application of cocain without preceding it with water, I do not get the results. I do not succeed in reducing the sensibility of the surface of the root. I precede the cocain application in the pockets by washing the pocket with hot water, and I use water just as hot as I can get it there and not burn, just short of the point of scalding. I use the ordinary little syringe that holds, I suppose, half an ounce, and I discharge one, two, three, perhaps four charges from that syringe into the pocket before I apply the cocaine at all, then inject a single drop of cocain.

The first application of cocain is guarded; that is, I keep the saliva away and protect it for perhaps two or three minutes, then I wash again and apply the cocain. I make three applications of cocain in succession, sometimes four. After the third application in most cases, and certainly always after the fourth, I can go to the end of the root,—the apex, if the pocket goes that far,—and can scrape the root, as I have done in some cases until my conscience revolted, because I thought I was hurting the patient, and I have been told there was no pain felt.

It requires about fifteen minutes to make the three applications ; and four will do it in every case that I have encountered.

Now, one other point in regard to the cocain escaping about the mouth. If in making these injections the dentist will place some absorbent cotton around the tooth and pack it compactly about the sides, it will prevent overflowing. In case it does escape and the patient experiences the symptoms of loss of the sense of taste, stiffness of the cheeks, etc., I dissipate that in from one to two minutes by simply rinsing the mouth with alcohol or whiskey.

DR. HEWITT. I can corroborate what the last speaker has said with regard to the application of cocain in pyorrhea alveolaris.

Cocain should be purchased in large crystals, because if it is purchased in fine powder you will almost always find it adulterated, scarcely ever pure. The prisms should be in their primitive rhomboidal form, clean and large ; then they should be pulverized very thoroughly. Dip the point of a moistened instrument in this pulverized cocain and carry it to whatever point you choose, and the effect is almost instantaneous.

There is a large range of application where cocain is exceedingly useful, but I felt it my duty to the profession to call attention to its danger as a hypodermic injection, unless the injection can be localized or the effect counteracted by a heart-stimulant.

DR. V. PATEDAS, Bogota, Colombia. I find that a local application of cocain, made by wrapping or binding around the tooth a bandage bathed in a ten per cent. solution of cocain with antipyrin and allowed to remain ten or fifteen minutes will produce a good result.

DR. AGUILAR, San José, spoke of the use of cocain in preventing nausea while taking impressions, rubbing over the palate a solution and so anesthetizing it partially, taking an impression without nausea or producing vomiting, which without it in many cases is produced.

To obviate the unpleasant taste of the cocain, he says his custom is to mix with the solution of cocain a very small quantity of saccharin, in the proportion of fifty centigrams of water and three of pure cocain. Take a very small amount, just what you could get on the point of a penknife, of saccharin, mix it with the cocain, and thus obliterate the bitter taste of the cocain almost altogether.

DR. FLETCHER, St. Louis, advises that the tissues be tested with a sharp instrument and the extraction made as soon as possible before the cocain is taken up into the circulation; the bleeding that ensues eliminates the cocain with the effusion of the blood, so that you get but very little into the circulation, and it cannot possibly get as far as the heart, I think; at least not enough to do any particular harm.

For the painless removal of pulp tissue, DR. ROSE rubs small portions of the cocain in a mortar or on a glass with a single drop of carbolic acid, touching the exposed nerve with what can be carried of this solution on a nerve-broach.

DR. HEWITT accomplishes the same result with a paste of cocain and glycerin. He said, I would use the glycerin in preference to carbolic acid; you can take that paste, apply it to the bare nerve if you can get to it, then follow it clear down to the apex, and you can remove it without a particle of pain.

DR. WM. MORRISON protested against the extraction of so many teeth, and said, I hear with regret the essayist call attention to the fact that he extracted two central incisors, and two lateral incisors, and two cuspids, by his hypodermic use of cocain for the insertion of an artificial denture, in this age of modern crown and bridge-work. We should counteract this detrimental influence that has been produced and is being produced by the advantage claimed to have been gained by the painless extraction of teeth, for I believe, from an anatomical or physiological standpoint, in crime next to abortion comes the ruthless extraction of human teeth.

DR. PRUYN spoke of the cases in which it would be unwise to use cocain—for instance, in a case of known pregnancy, or where there is any known pulmonary trouble, or where there is a diseased condition of the kidneys, because cocain has a very marked effect on the kidneys.

He said, I find by experience the best results attend its use after the patient has had a full meal; I have found the toxic effects much more marked when used upon an empty stomach.

If I wanted to use it in a case to any considerable extent, I should first fortify my patient by the use of morphine. To those of you who want to use it, I should advise first to experiment upon dogs, and you will learn the symptoms that you cannot see unless you bring your patient to death's door.

DR. C. W. DAVIS, Lincoln, Neb., read a paper entitled

OBTUNDING THE SENSIBILITY OF THE DENTINE.

He said, if we are to eliminate pain from an operation, we should first study its cause and the means by which it is transmitted to the seat of realization. He combats the theory of nerve fibers in the dentine, claiming that the tubuli are filled with protoplasm, which is capable of transmitting the sensation of irritation to the odontoblasts, lining the pulp-chamber and root canals, each of which is connected with one or more of the terminal fibers of the sensory nerves. Chlorid of zinc or carbolic acid applied to the protoplasm, thus destroying its life and obtunding sensibility, because we have destroyed the medium through which the sensation is transmitted. Coagulation of the protoplasm not being permissible, because of jeopardy to the pulp, the alternative remains of removing the protoplasm from the tubuli. This he accomplishes through the application of alcohol vaporized by hot air, leaving the tubuli empty, and the sensibility of the dentine obtunded. But as the dentine is hygroscopic—capable again of taking up moisture; from within by capillary attraction, from without by contact with the atmosphere, the next step is to fill the tubuli with some other substance. I fill the tubuli with a resinous gum in suspension in a volatile oil. Almost any one of the essential oils will answer the purpose. Upon the application of hot air the oils are easily volatilized, and if it has been diluted slightly with alcohol, it will readily go into the tubuli as far as they are empty, leaving a gum to fill the space. To this distance you can excavate with impunity; consequently, the success of the operation will depend upon the thoroughness with which you extract the protoplasm.

Dr. Davis then reviewed other methods resorted to and said, I believe there is no method which has partly obtunded the sensibility of the dentine, whether freezing, superheating, application of caustics or devitalizing agents, etc., that cannot be explained upon the hypothesis given; this method of obtunding the sensibility of the dentine will come nearer success than any before presented, inasmuch as a foreign substance is inserted in its place, after extracting the medium for transmission of pain.

In cases where local means seem to meet with failure, a general anesthetic is resorted to, as follows: Take an ordinary gas

apparatus with a Buffalo inhaler. In the inhaler place one drachm each of alcohol and ether; also four or five drops of nitrite of amyl in solution. Administer as in giving nitrous oxid. The first effects noticed are those of the gas. Five or six inhalations of this compound anesthetic are sufficient to produce anesthesia. The symptoms are similar to those after administration of nitrous oxide gas alone, with addition of the flushed face caused by nitrite of amyl. The anesthesia from the gas and ether soon passes away, leaving the patient semi-conscious, with the power of conversing with the operator and seemingly capable of realizing all that is going on; but there seems to be a temporary paralysis of the fifth, especially the third division, lasting from ten to fifteen minutes, sometimes twenty. It is a fact well known to the medical profession, that a few inhalations of nitrite of amyl will give speedy and temporary relief to neuralgia; also the suffocating sensation incident to an attack of asthma; also that upon its administration there seems to be a dilation of the capillaries in the parts supplied by the fifth nerve, as is evinced by the flushed face; altogether going to show that this drug seems to have a special action on the fifth nerve. This led me to experiment, with the result above stated. These two methods will make the operation of tooth excavation entirely painless, the result being universal as far as my experiments have gone at present.

For general practice I would not at present care to advise the use of any general anesthetic for an operation upon the teeth. It is certainly attended with some danger. The amount of danger connected with the administration of an anesthetic as complicated as the one just given, I am not now prepared to state. However, I believe it to be comparatively safe, as the action of the various ingredients upon the cardiac muscles and region, as well as upon respiratory organs, is antagonistic.

This paper was passed without discussion, and the Section adjourned to 2:30 Wednesday.

SECTION VI.—OPERATIVE DENTISTRY.

After the address of welcome from the chairman, Dr. Henry Morgan, of Nashville, Tenn., secretary of the Section, read a paper by Dr. H. L. Ambler, of Cleveland, Ohio, entitled

TIN FOIL FOR FILLING TEETH.

The advantages claimed for tin foil by Dr. Ambler are that it

wears longer than oxychloride or gutta percha; that it is quickly and easily manipulated, that being soft and ductile it closes the dental tubuli, being driven into them; that from its low conducting power it can be used near the pulp, and that dentine often hardens under it. He claims that it is especially useful in chalky teeth, and that it lasts long in buccal and palatine cavities.

Strips of No. 10 from one to three thicknesses, can be welded together, cohering as well as semi-cohesive gold, or better, and can be manipulated much more rapidly; therefore, if desirable you can produce any contour.

Instruments with square ends and sides, and medium serrations, are best adapted for hand force, and the majority of mediumly serrated hand mallet instruments will work well on No. 10 tin of one, two, or three layers, using a four-ounce mallet with a fair, steady blow.

Generally cavities are prepared the same as for gold, except that the grooves or pits should be a trifle larger. Many cavities can be filled with less excavating than required for gold, and some approximate cavities in bicuspid and molars can be well filled without removing the masticating surface. Here especially the cavities should be cut square into the teeth, so as not to leave a feather edge of tin when the filling is finished. In nearly all approximal cavities in bicuspid and molars you will find some form of matrix of great advantage. By driving the tin firmly against the matrix you secure a well-condensed surface, and the teeth will move apart *slightly*, so that with a bevel or thin plugger you can force the tin between the matrix and the edge of the cavity, and thus be sure of having a tight filling, and plenty of material to finish well; then after removing the matrix condense with thin burnishers, and complete the finish as for gold.

We find that tin prevents further decay at the cervical margin of deep cavities oftener than any other metal or combination of metals. We fill from one-fourth to one-half of the cavity with tin, completing with gold when the tooth is of good structure, which gives all the advantages of gold for a masticating surface.

In the discussion of the paper DR. E. T. DARBY said: The author of the paper has certainly paid a very high, and I don't know but a very worthy tribute to tin. I have always said that tin was one of the best filling-materials we have. I believe more teeth could be saved with tin than with gold. Whether tin pos-

sesses the antiseptic properties in as great a degree as is claimed by many, I sometimes question, but I do know that tin has a saving quality that we do not always find in gold. There is but one disadvantage that tin possesses, so far as I am aware, that is its color, but in all approximal cavities that are exposed to view I believe the average dentist will do as well with tin as with gold. I believe if the dental profession would use more tin, they would save more teeth. For children's teeth I know of nothing better for masticating surfaces.

MADAM TIBERTIUS HIRSCHFELD, of Vienna, heartily endorsed the use of tin and gold, after a practice with this material for twenty-four years. Her practice had been mainly for children and ladies, and she thinks for filling children's teeth there is no better material than tin and gold; sometimes these fillings were put in when the child was seven or eight years old, and at the age of seventeen the fillings were still perfect.

DR. R. R. FREEMAN, Nashville, Tenn. You don't know how happy I feel to hear the subject of tin foil brought up before this Congress. I learned something of tin in the early school, when I happened to be upon the stage with Madam Hirschfeld, when we received our diplomas. I have written upon tin foil, I have talked upon it and advocated its use. I know what it is doing, and I know what it has done for twenty-five years.

All through our southern country we have those who are using tin foil for its therapeutic properties; it has that healing property for the dentine of children's teeth, that hardens them, and it has been only a few years ago since one of our best practitioners said, "I must acknowledge that tin does save teeth."

I am glad to give my testimony in behalf of tin foil.

DR. ALBERT H. BROCKWAY, Brooklyn, N. Y., said: If you are to do the best thing for the patient, be extremely eclectic in practice. It is for us to determine what to use for a given case under given conditions. I am a strong believer in the use of tin foil in such cases as will admit of it; I use it more or less, and I use it for two reasons especially. The first is from its adaptability and facility with which a saving filling can be made in favorable cases; I am also inclined strongly to believe in its therapeutic properties. I use it especially in children's teeth, in cases where tin foil has been strongly recommended, and in which recommendation I quite agree; but there are many cases in children's

teeth where it seems to me that tin foil could not be used so successfully as other materials, notably gutta-percha.

I wished simply to speak of the limitations of the usefulness of tin foil

DR. GORDON WHITE, Nashville, Tenn. I claim for tin after having used it for nine years, that it is the best filling-material that has yet been given our profession, excepting that it will not stand friction; I think it is the best tooth-preserver that we have.

DR. C. S. STOCKTON, Newark, N. J., spoke of the many patients who are unable to pay the large fees entailed by gold fillings, and said, it is necessary and right to save the teeth of those who are not able to pay the large expense of gold-work, and if we have a material that will save teeth it seems to me it is our duty to use it. Tin is one of the best materials for saving teeth, and we should use it more than we do.

DR. ST. GEORGE ELLIOTT, London, Eng. It is to a very great pleasure to return to this country and find that tin is at least beginning to have a large number of advocates. In Europe we all look upon Dr. Abbott in Berlin, as the father of modern dentistry there; he was one of the earliest, though not the first, to use tin foil, and he did so very successfully; he carried it out in his own practice, and his son-in-law, Dr. Miller, took it up, as did also Dr. Jenkins, of Dresden. For ten years I have used it very largely; I have averaged from four to five or six fillings a day. The greatest advantage of tin and gold has not been spoken of; you know if you get a preparation of tin and gold in correct proportions there is practically a chemical union between the two, and you get not only hardness but a certain amount of expansion. It is exceedingly valuable in filling crown cavities of molars. Its hardness is not immediately gotten; It takes from one to three years to harden.

JAMES TRUMAN. It is with a great deal of gratification that I find even at this late day, after forty years of practice in the use of tin foil, that it is coming up again with honor. I have long been satisfied that the profession has lost much in the abandonment of this material.

In regard to tin and gold. I have used it a good deal, and have seen Dr. Abbott operate with it in Berlin, and I know a good deal about Dr. Miller's use of it, and I am satisfied that it is a most valuable combination. It can be placed in wet, and if

it is placed in wet it is better than when dry, owing to the action of the fluids of the mouth producing galvanic action between the two metals, that produces hardness. I remember once I had occasion to remove an anterior approximal filling of Dr. Abbott's, and I found that the tin and gold was as hard as any amalgam filling I ever saw, and I had great difficulty in cutting it out. That was due to galvanic action between the two metals. I feel gratified that this matter has come up this afternoon.

DR. A. W. FREEMAN, Chicago, spoke of the value of tin fillings finished with cohesive gold, and said, I endorse the use of tin and gold, and especially do I believe in its chemical action.

At the conclusion of this discussion the Section adjourned to 2:30 P. M., Wednesday.

SECTION VII.—PROSTHESIS AND ORTHODONTIA.

The Section was called to order at 2:30 P. M., by Dr. C. L. Goddard, San Francisco, Cal., who read an address of welcome.

Dr. V. H. Jackson, New York, then read a paper entitled,

A METHOD OF CONSTRUCTING SPRING APPLIANCES FOR CORRECTING IRREGULARITIES OF THE TEETH.

This paper was very fully illustrated, Dr. Jackson having about forty drawings of appliances; he also announced that models of many of the cases would be shown to the Section at another opportunity.

Dr. Jackson defined a "regulating appliance" as being "any apparatus designed to move natural teeth that are out of the line of harmony into their proper position."

In constructing an appliance for this purpose, the first requisite is that it shall be sufficiently well anchored to withstand either the constant or interrupted force necessary to correct the irregularity without being materially changed in its position. The comparative value of the different systems that have been presented for this purpose can only be satisfactorily understood by having had experience with each of them.

In the system introduced by Dr. Jackson, the appliance is constructed of wire, with a base wire, which is so termed on account of its being the foundation portion of the regulating appliance, to which cribs that clasp the teeth for anchorage are attached, and also springs that are to cause pressure to correct the position of those teeth that are out of line.

The base wire can be made of any metal desired. Metal used for this purpose alone should not be springy, but stiff and unyielding. It can be made any shape, round, square, or flat. The round is usually preferred.

A perfect plaster model of the teeth should first be made and carved, especially the gum portion, at the necks of the teeth to be used as anchors.

The "cribs," forming a partial clasp, are made preferably of gold or German silver, or any other metal applicable, about No. 33 to 36 standard wire gauge (Brown & Sharp) in thickness, hollowed and shaped accurately to fit the contour of the teeth that are to be used as anchors, and arranged to press well up about the neck, and at the same time made to curve sufficiently over the prominences of the tooth toward the grinding-surface to prevent the appliance from pressing on the gum. The partial clasp is arranged on the side of the tooth to which the base wire is to be attached.

If adjoining teeth are to be used as anchors, partial clasps should be arranged on each so as to touch each other at the junction of the teeth.

A spring wire, about No. 22 standard wire gauge, or a little larger, as the case may require, is formed so that it will fit the labial side of the tooth to be moved, with both ends passing over the arch at the junction with the adjoining teeth, and curved about the lingual side near the gum line, to rest on the metal described, but it should be made to fit loosely, so as not to injure the plaster model in removing it.

The clasping power of the crib depends much on the spring properties of the metal used for the springs. Piano-wire is at present the most efficient, although spring gold, German silver, and iridio-platinum wires are often utilized. When the appliance is adjusted in the mouth, proper pressure is applied by making the necessary changes with the clasp-bender.

The uniting of the metals of the crib to the base wire is accomplished by soldering either with soft solder or silver solder. Soft solder is used for attaching the parts constructed with piano-wire. If silver solder is to be used, the parts should be held in position on the model and united with hard wax, after which they should be removed together, and invested sufficiently with plaster and sand to hold them in position while soldering. It is

desirable usually, after the appliance is inserted in the mouth, that it should remain untouched for about three days, so that the patient may become accustomed to it. After that time, the pressure may be changed once a week, or oftener if desired.

Pressure is increased by removing the appliance and bending the spring in the direction in which the force is desired.

A detailed description of the method as applied to the correction of typical and more commonly occurring forms of irregularities was given, in connection with an elaborate series of illustrative charts. These will appear in full in the Congress Transactions.

In the discussion which followed, Dr. Jackson, in reply to a question, said, that if patients would keep their teeth clean they could prevent the wire from corroding. If it was found that a patient allowed it to rust it would be necessary to see the patient more frequently, and see that it is kept bright. This can be done by scraping spots of rust off, till the surface is quite bright, when it will generally last as long as the necessity for it exists. It should be kept bright even if necessary to polish it up every day.

He had found nothing so good as piano wire, having tried gold wire and iridium and gold. These are good, but as soon as you apply heat to hard solder then you destroy all the spring and spoil the virtue of the wire.

DR. J. E. KEENER asked—

1. Do you fail to move a cuspid? We all know that in the case of one well advanced in years it is very difficult to do this.
2. Do you rotate and at the same time and with the same appliance move the tooth backward or forward!

DR. JACKSON said that in regard to moving an incisor and at the same time rotating it, it requires only sufficient thought and study to devise and shape a spring so that by shortening or lengthening a loop, motion can be diverted in any desired direction. Each case must be studied as to the peculiarities presented, and and the appliance made to suit.

DR. ALLWINE thought that in some cases caps would be preferable to bands.

DR. JACKSON replied that he did not use caps, as they sometimes caused the opening of the bite, and he considered it very necessary to keep the teeth in exactly the natural position.

DR. E. M. S. FERNANDEZ, Chicago, thought the paper was in-

valuable, but he differed from it on two or three practical points. He disapproved of letting any patient know how to take the regulating appliance out, because, especially in the case of children, if they can remove it, they will do so, and only return it when they come to see the dentist. In this way the appliance will not do any good, and the dentist will get the blame for the failure.

As to cleaning the rust from steel wire, his way is to throw it into alcohol. He learns this from seeing a piano-tuner clean the rust from the wires of a piano, and now he throws every such appliance into alcohol whenever he removes it from the mouth. Then brush it off with soap and water, and the appliance will not rust readily again.

After some further discussion by Drs. Prosser, J. Rollo Knapp, E. Marshall Smith, M. R. Finley, C. S. Case, C. L. Boyd and others, Dr. C. G. MYERS, of Galveston, Texas read the following paper:

A METHOD OF FUSING PORCELAIN FACING TO BACKING AND CAP.

The great objection to porcelain-faced crowns has been, in the past, the liability of the facing to fracture and lack of cleanliness. To overcome these defects I have succeeded in fusing in the porcelain facing to the backing and also to the cap at the time of soldering.

The materiel employed is the white enamel used by jewelers in ornamenting gold. This comes in lumps almost as hard as flint, and is reduced to an impalpable powder by grinding in water in an agate mortar and afterwards washing thoroughly. After fitting the thin pure gold backing as accurately as possible to the facing, remove backing, and with a fine-pointed brush place a small quantity of the enamel; mix with water to the consistency of cream on back of the facing, but do not let it come in contact with the pins. Replace the backing, and bend pins slightly to hold it in place. Then place facing on asbestos, and flow up backing with solder. The heat required to flow solder will also flow the enamel, forming a perfect union between porcelain and gold. In like manner the enamel may be used to fill space between facing and cap, and when soldered it will form a perfectly cleanly as well as strong piece of work.

The enamel can also be used in gold plate-work when the

teeth are to be soldered to plate, thereby doing away with the uncleanly joints so often found. By removing the objectionable features of work we thereby widen its scope.

In this short paper I have tried to give you the result of some experiments I have been carrying on for several months. If they can be of any service to you, our time has not been vainly spent.

SECTION VIII.—EDUCATION, LEGISLATION AND LITERATURE.

The Secretary read a paper by P. Macarovici, M.D., Jassy, Roumania, subject

ON THE STATUS OF THE ART OF DENTISTRY AND OF DENTISTS IN ROUMANIA.

Dr. Macarovici said that after searching in vain through the literature of Roumania for anything whatever bearing on the subject of dentistry, he had endeavored to form a dental society, the object of which should be diffuse a knowledge of chirurgico-dental science in the Roumanian language; to establish a special school of dentistry; to found a dental museum; and to establish a dental library. The total failure of this great undertaking was a source of bitter disappointment to him. Of the status of dentistry in Roumania, he says: An evidence of the slight degree of confidence which the Roumanian public reposes in dentistry may be gathered from the circumstance that the native dentists might exhibit mountains of human teeth, if the patients were not in the habit of demanding the same after extraction for preservation among their relics. Our patients will have nothing but extraction; of reimplantation, filling, or similar chirurgico-dental operations, there can be no question in our country, for even when we have succeeded after prolonged discussion in persuading a patient to submit to filling, he demands the impossible, namely, that the entire operation shall be concluded instantaneously.

Up to the year 1888, the only requirements from those not holding a foreign diploma, was they should be able to pass the "Subsurgical" examination. At this examination he was compelled to show that he had become practically acquainted, by a year's attendance in a hospital, with the following procedures and appliances: Venesection, leeching, blistering, clysters, cataplasms (fontanellen öffnen), vaccination, and the extraction of

teeth. The candidate, besides, was required to be able to read and write.

In 1888, a dental law was enacted, by which the standard was materially elevated, giving grounds, in the words of Dr. Macarovici, to hope that the country may shortly be able to show more worthy representatives of the dental art than it now possesses.

This paper, owing to its purely historical nature called forth no discussion.

On motion of Dr. Noble this paper was passed, and that of Dr. Frank W. Sage, of Cincinnati, O., entitled

THE EDITORIAL FUNCTION IN DENTAL JOURNALISM,

was taken up, and read by the Secretary of the Section owing to the absence of the writer.

DR. SAGE, in this paper indulges in severe criticism of the editors of dental journals who "load their pages with swelling phrases which mean nothing in particular, or not infrequently mere paraphrases of familiar passages to be found in standard dental works;" who "publish papers without question as to their character or worth;" who employ a stenographer to report the discussion and insist on having a full, copious report made, printing the exact words without revision or emendation, promulgating on the printed pages the wildest theories, the boldest speculations of Smith, Brown, *et al.*, since those theories and speculations had furnished a theme for discussion in the convention.

Eminent men in the profession, editors and others, years ago called attention to the fact that our literature is not of the high order which should characterize a profession so progressive, in other respects, as ours. No one, to our knowledge, has however suggested the expediency of the editors themselves taking a higher stand, so as to be in a position to stimulate contributors to worthier efforts.

Dr. Sage also criticises the lack of *editorial matter* in the dental journals, and also of lack of *editorial revision* of contributed matter. He said: The editors of great secular magazines do not hesitate to suggest, even to writers of distinction, changes in MSS. submitted to them. True, they stand in an exceptionally independent attitude. Few authors feel that they can afford to ignore the publisher's suggestions. Publishers are supposed to

know best what the public want. Authors generally defer to their opinions.

Now, why should not the same deference be made to the opinions of dental editors? Why should they not be sought out and consulted in this matter of deciding what amendments are required in any manuscript which it is proposed to print and bring to the profession's notice.

Has the time arrived for dental editors to take a higher stand in this matter? What would be the probable effect of putting into operation this suggestion? First, the contributor should be stimulated to self-improvement as a writer. Secondly, the editor would be put upon his mettle, and possibly stimulated to more worthy effort in his own writing. It would further serve to create a distinction between such journals as aspire to lead and instruct their readers, and others which are obviously mere mediums for advertising dental wares. It would undoubtedly increase the journals' circulation, for unquestionably the improvement would not be overlooked by the most casual reader. The effect at first might be to check production. That might not be an unmixed evil. Let us cut out all irrelevant matter from our journals; let us put a premium on brains, and then trust the future for results.

Place a few salutary restrictions upon contributors. Pay something for contributions. Payment for an article is a guarantee of real worth in the article accepted.

Of book reviews, he says: What more important service can the editor render the large and increasing number of purchasers of dental works, than to give them, in advance, an impartial judgment of their merits and defects alike?

In the opinion of Dr. Sage it is in the published reports of discussions in our conventions that the need of editorial revision is most palpable. Many of these reports could be cut down one-third or one-half, with very desirable effect. Of course much latitude must be allowed our extemporaneous speakers in conventions. They must be left untrammelled to range over the field of the subject, as the inspiration of the moment dictates, but after an experience of twenty years in short-hand reporting in dental conventions, the writer of this paper is of the opinion that but few speakers appear at an advantage in a verbatim report. They appear better in print in a synoptical report.

In conclusion, he said: Let us hold up the hands of the

editor and make him the central figure, let us concede to him the right and privilege of infusing more of his individual spirit into the journal, even if it be at the expense of the contributor's idea of what the reader wants. Thus shall we accomplish the desired object of conferring upon the journal a distinctive character calculated to extend the range of its influence and fix the standard of its authority.

There was no discussion on these papers, and the Section adjourned to meet at 2:30 P.M.. Wednesday.

(To be continued.)

ERRATUM. In the discussion of Dr. Bonwill's paper appearing on page 492, OHIO DENTAL JOURNAL, October No., Dr. C. N. Peirce was incorrectly reported. To illustrate the gradual change which might and does oftentimes occur to modify members of one species of animals so as to form a new species, time and change of environment being the factors which would bring this result. Dr. Peirce said:—That the gradual change which takes place in animals might be illustrated by taking a hundred jars of pure water, standing them side by side, placing one drop of coloring matter in the second jar, two drops in the third and so increase the amount in each jar to the hundredth. While there would be no perceptible difference between any two proximal, or adjoining jars, yet between the *first* and last, or *hundredth* jar, there would be a wide difference in the color of the liquid.

THE ILLINOIS AND IOWA STATE DENTAL SOCIETIES.

Continued from page 500.

DR. J. TAFT read a paper entitled "History of the Progress of Dentistry in the West."

He said very little of dentistry was known in the West over sixty years ago. At that time when the section of country containing Ohio was really the West, very few dentists could have been found, and they were still less in number as we went still farther West. However, a beginning was made about that time in the central portion of Ohio, from which great results have been realized, the outreach of which has extended all over this broad land.

Of the few men engaged in the practice of dentistry in that State at that time were Chapin A. Harris, who resided in the year 1827 in Greenfield, Ohio, engaged in the practice of medicine. In the year 1826 Dr. John Harris, a brother of C. A., and

the late Dr. James Taylor, resided in Bainbridge, Ohio. The latter, a student of medicine, with Dr. C. A. Harris. Dr. John Harris had some knowledge of dentistry which he imparted to Dr. Taylor. Together they entered upon the practice of dentistry, part of the time in Greenfield, the home of Dr. C. A. Harris, and there and then did Dr. Harris conceive the idea of taking up the practice of dentistry. After studying, working and practicing with his brother and Dr. Taylor, in Greenfield, for about one year, he removed to Bloomfield, where he practiced dentistry and medicine for about two years, at the expiration of which time he removed to Fredericksburg, Va., where he attained such success in dental practice that he wholly abandoned the practice of general medicine. His success here stimulated his ambition and he was not long content in Fredericksburg, and after being there about a year and a half he removed to Baltimore, Md. Here it may be said, his great work for the profession began. What had gone before had been preparatory only to that which he was to accomplish in the future.

He did not enter the profession according to the present custom; he simply took hold of a few points and facts and built upon them and continued to build until a great and almost marvelous change was effected. Dentistry was not then a profession, but a confused, chaotic, unsystematized and very circumscribed calling, which was adopted by a few and followed chiefly in an experimental way. Very little was done at that time in the way of improvements with full confidence as to the outcome. To develop and work out the possibilities that these three men saw in this line of medical practice seems to have been the impelling power pressing them on to higher and higher attainments.

Dr. Chapin A. Harris was largely instrumental in the inauguration of three powerful agencies for the development of the science and art of dentistry, and for bringing it into a position and condition entitling it to be ranked as a profession, or rather as a department of the profession of medicine and surgery. To Dr. Harris is due the credit for the establishment of the first dental college in the world, and also for the inauguration of the first dental periodical in the world. He also added far more to the standard literature of dentistry than any one who had preceded him. Of him it may with emphasis be said, that whatever he did was grandly done. The results of his work have been,

are, and will be felt not only in all the States of this country, but in all the countries of the world where dentistry is practiced and known. It is true that a great proportion of Dr. Harris' work was not done in the West, but he was a western man, and for this, together with the fact that all honor is due to him, I make this brief reference.

Closely allied with Dr. Harris, in all his special plans, was the late Dr. James Taylor, to whom reference has already been made, and especially was this true in regard to college work.

I have above referred to these two pioneers, not because there were not others who are worthy of mention, but because these two stood so prominent in dentistry in the West at that early day. They were the originators of enterprises, institutions and lines of work which others afterward entered upon and carried forward to a fuller development and more mature fruitage.

Dentistry was very crude in its early periods in the West, as might be said of it everywhere. But it was under far greater embarrassment here than in the older parts. While there were some thoroughly competent dentists in the early days in the West, by far the larger number were inferior, and many were mere adventurers, with very defective qualifications, and too often dishonest as well as incompetent.

The facilities in the West for obtaining the needed supplies of materials, instruments, appliances, etc., were very meager indeed, as compared with the opportunities afforded in the older portions of the country. The people in pioneer days of the West were, for the most part, not such as would constitute a desirable cliental, nor serve as a stimulus to great achievements or rapid progress. But things did not long remain in this primitive and chaotic state. The elements of civilization were gradually being introduced, were becoming more and more self-assertive. The character of the population passed through rapid changes, constantly assuming a higher type of civilization. While this process was going on, another was taking place, viz., the infusion into the communities of a better class of dentists, and a better and improved phase of practice was the result. This change was of slow growth prior to the introduction of railroads, which event greatly facilitated travel and intercourse. This facility of communication brought rapid changes and progress in all departments of human occupation. Dentistry shared in this ongoing and in some respects seemed to outstrip many callings.

He then mentioned the organization of several societies and the elevating effect that these, together with educational institutions and dental literature, had had on the profession. Closing, he said :

There are now five distinct classes of dental association work, viz., 1. That more intimately connected with the general medical profession. 2. That exhibited in our national associations. 3. That exhibited in our State Associations. 4. That exhibited in district societies. 5. That exhibited in city societies. Each of these is working, in a degree at least, upon different lines of work, differing from the others, but the work of all having a common aim directed to a common point, viz., the development, upbuilding, and growth of the profession.

The discussion was opened by Dr. Geo. H. Cushing of Chicago, followed by Dr. Hans Block of Dresden, Germany, W. O. Kulp of Davenport, A. W. Harlan of Chicago, Dr. Charles E. Blake of San Francisco, L. C. Ingersoll of Keokuk, G. V. Black of Jacksonville, and closed by Dr. J. Taft of Cincinnati. The subject being passed.

Dr. Grafton Monroe then read a paper entitled "Guardianship of the Teeth, Parental, Personal and Professional."

He said: Let parents awaken to the proper appreciation of the natural organs and then they can better preach to the children. The use of the brush in the presence of the little ones, before their teeth are all in place, encourages their curiosity and they must soon know what it is for and why they can't have one also.

The proper attention to the diet and eating of the little ones given to our charge cannot be too forcibly impressed upon parents. The gratification of the appetite for sweets and food not easily assimilated is too often practiced by those having the care of children, to such an extent as to cause serious impairment of these important organs.

Did parents bestow as little care upon the hair and nails, although less firm but kindred in their origin, as is given the teeth, we would have a race as homely in appearance as are many of the mouths that come into our care.

Many parents are so thoughtless of the needs of attention to the children's teeth that their neglect becomes apparent to them at such a time only as when the child is suffering with an aching

tooth. Then they are surprised that the child's teeth should decay so rapidly, when the parents themselves have neglected the first principles of watchfulness and proper tuition of the child to cleanliness of these organs.

Few people in their personal attention to their mouths and teeth can be accused of too scrupulous care. The brush should never be used less than twice a day, and the well-directed use of a wash of an antiseptic nature would often prove a most wholesome practice. As the mouth does not afford easy access for personal observation it becomes a duty to make an annual (at least) call at the dentist's office, and let us hope that the day is not far distant when it shall become as much of a personal obligation to look after the condition of the mouth and teeth as it has become so in regard to complying with a sanitary measure requiring the vaccination of a child before it can enter a public school.

The use of sweetmeats at promiscuous times without any cleansing of the mouth or teeth thereafter, gives the mouth a condition favorable to the progress of caries.

As a professional guardian the dentist should be a man of clean hands and clean heart; in fact he should be pre-eminently a clean man. Many of the subjects of our care, in the mouths of our patients are often not great incentives to cleanliness, but it should be our duty to raise them to a higher level and let our personal condition be the criterion of cleanness.

The dentist's fee should be one that will compensate him for the guardianship he endeavors to exert over these most important organs, but amid his desires for proper compensation, it might be well to have a little charity for those who are his victims.

The dentist's health is another requisite, which will be the better promoted by attention to proper light, proper exercise and proper hygiene in general, for with a good nerve, a good stomach and a steady hand he can handle all, from the most peevish, fretful and spoilt child to the acutely sensitive or even pregnant woman and the nervously timid man.

Let us strive to have a sound mind in a sound body and give to our proteges the attention due them at the hands of professional guardians.

The discussion was opened by Dr. T. L. Gilmer of Chicago, followed by Garrett Newkirk of Chicago, H. H. Townsend of Pontiac, and G. V. Black of Jacksonville.

ALL SORTS.

Thin Rubber Plates.—To secure the maximum strength without increasing the thickness of vulcanite plates it is necessary to make the mold so smooth that the rubber, when removed from the plaster, needs only the brush wheel to finish it. To accomplish this, first saturate the model with water, then dip it in a vessel of clean melted base plate wax. —*Off. & Lab.*

Crouse (J. N.) on Pulp Capping.—The first thing in the case of an exposed pulp is diagnosis, to know whether it is exposed or not. The most difficult thing is to find out whether it is in a healthy condition or not. I know of one test than can be relied upon always. If portions of the dentine of a tooth should be sensitive to the excavator, give off healthy sensation, as I call it, then I consider that a fit pulp to cap regardless of age, for in a younger person it is more likely to live than in an old person where the pulp is small.—*Extract Review.*

Methods of Adjusting the Logan Crown.—To get an accurate adjustment of a Logan crown, Dr. R. C. Young takes an impression of the exposed end of the root after it has been approximately trimmed, and makes a cast. He then smokes the cast, and on applying the crown you see exactly where to grind.

Dr. Freeman paints the end of the root red. The pigment adhering to the crown shows where to touch it up with much less trouble than making a cast.

Dr. Boyd uses a little rouge and glycerine for the same purpose.

Hill (Dr.) on Amalgam.—I believe there are more teeth saved to-day with amalgam than with gold. If the cavity is properly prepared and the alloy well manipulated, you cannot insert an excavator in the margin inside of four years. If the margins are cut down square, amalgam properly mixed and well handled, and when hardened is burnished down, it will not creep up in the middle; even the dirty old copper amalgam, an amalgam that will save many teeth better than any other material.

I am not an advocate of indiscriminately filling teeth with amalgam, but I do believe it will save teeth, and save them well in a great many cases where gold would not; for instance, distal cavities in back of the mouth.—*Items.*

Esterly (C. E.) on a Method of Constructing Crowns.—This is essentially a Richmond crown. The band is fitted to the root, as any

band would be fitted. The top of the band is cut forming a V-shaped slit and the ends bent over the end of the root; a pin fitted to the root and bent to the required angle; the ends of the tooth fitted with gold solder. Instead of backing up the tooth and using gold as a backing, you simply put in this continuous gum body, which is fused to the tooth and to the band, making one continuous mass, which produces a solid porcelain crown with a platinum band.

In adjusting the body it requires very careful work to get it smooth, and the slightest jar will displace it.

The small furnace you have all seen, in which the gas supply is furnished by gasoline, is quite efficient, and, I think, is fully equal to the gas supplied in the larger towns.—*Western Journal*.

Dougan (W.) on Extracting Tooth Roots.—One of the most effectual ways of removing very badly broken down stumps or the apex of a stump, from the upper jaw, and in some cases, though less often, from the lower jaw, is by a method to which I have given the name of "expression," and which, so far as I know, has never been described. The method is briefly this: The gums and alveolar process about the apex of the root are pressed or pinched with a suitable pair of forceps, so that the root is shot out as a pea might be expressed from its pod. This is an altogether different operation from the old and well-known one of seizing the alveolar edges and tearing them away with the root, and which you will find described in all text books. In this operation of expression little damage is done to the tissues, in comparison to the end achieved.—*Brit. Jour.*

A New Pivot Tooth.—A new, novel and creditable form of pivot tooth, with dowel made solid in the tooth, was exhibited by Dr. S. Davis, of Denver, at the Colorado State Dental Society. The tooth consisted of the ordinary plain plate tooth. A platina pivot adjusted and secured to the tooth pivots them. A band and cap formed to fit the end of the root when the tooth with the pivot were put in position. All were secured by wax in such a manner as to cause them to be removed with band and cap, each in its relative position. The case was now invested, and, after crystallization, Allen's tooth body was added to the palatine surface and flowed in a small gas furnace, giving, when completed, the same contour and appearance of a Logan crown. After cooling, the tooth was divested and the platina band on its labial surface was carefully covered with Allen's gum enamel and flowed in the furnace. The tooth when placed in final position looked in harmony, the gum bearing the same acceptable harmony as the rest of the structure.—*Western Journal*.

Read (L.) on Plate Strengtheners.—Mr. Read has adopted an excellent idea for strengthening plates. It is especially adapted to upper plates with the front teeth standing, and where it is desired to keep the plate across the roof of the mouth as narrow as possible. He takes a piece of half round wire having a thickness about equal to that of a sixpence, this is fitted across the palate or the plaster cast and waxed in position; in the zines this is of course represented by a ridge which strikes up a groove across the gold plate and adds greatly to its strength. The gum readily grows into this so that little or no space remains. Mr. Read states that the result of adopting this little plan, fully met the expectations he had formed.—*Dental Record*.

Steresol, a New Antiseptic Varnish, is said by Dr. Berlioz (*La France Med.*) to adhere perfectly to the mucous membranes and the skin, the phenol which is its active ingredient) not evaporating completely from the layer of varnish until after 24 hours. Its application is not painful, nor does it cause eschars, it is reported; and is said to have been remarkably beneficial in ulcerations. It permits of permanent asepsis of mucous membranes and of parts of the body where it is impossible or difficult to keep on bandages. Its composition is as follows:

Gum-lac, purified, entirely soluble in alcohol, -	9 ounces.
Benzoin, - - - - -	2½ drams.
Tolu balsam, - - - - -	2½ “
Carbolic acid, crystallized, - - - - -	3⅜ ounces.
Cinnamon oil, - - - - -	1½ fl. drs.
Saccharin, - - - - -	1½ drams.
Alcohol, sufficient to make 1 liter, - - -	33.8 fl. oz.

Rhein (M. L.) on Chloride of Methyl for Diagnosing Dead Tooth Pulp.—There is one point of especial interest to me, and that is the possibility of the unexpected discovery of a dead and perhaps putrescent pulp in a tooth, after capping—discovered by a kind of intuition. The longer I practice, the more am I convinced that there are more of such cases than we suspect. A pulp may remain quiet for years, when suddenly a volcano will burst forth. The practical point is, that we should use greater care in determining the condition of the pulp, when a capped tooth subsequently falls into our hands, and if it be dead that we should give it the proper treatment. For the past few years I have been able positively to determine this condition by the use of chloride of methyl spray. Ice water is not sufficient to form an unerring guide. I now slip a bit of rubber dam over the suspected tooth, and an application of the spray will instantaneously and unmistakably reveal its condition. It needs but a single instantaneous blast to do this.—*Practitioner & Adv.*

Greeno (L. M.) on Extraction of Temporary Teeth.—The removal of the temporary teeth is a matter that requires thought and care. Many bad cases of irregularity have been caused by the injudicious extracting of these teeth. If extracted prematurely there will be too much absorption of the bony tissues, and a contraction of that part of the arch. And on the other hand, if there is too long retention of the first teeth, the permanent teeth are liable to come out either outside or inside the arch and cause deformed mouths. Yet be as careful as we may in the matter of extracting, we may make many mistakes, but the best we can do is to study the science of the matter thoroughly by a familiarity with the best authorities; observe the effects closely in practice, and act carefully and honestly, and endeavor to do the best we can for the children who come under our care.—*Western Journal*.

Dick (A. N.) on Transferring Teeth from an Old to a New Base.—Occasionally I find it necessary to transfer the teeth from an old vulcanite plate, in which the suction is good and the articulation correct, to a new plate. This I usually do in the following way: After filling the plate with plaster for a model, imbed the crowns of the teeth half their length in a piece of White's Modelling Compound, softened to receive them. Then attach to an articulator, after which separate the plate from the plaster and remove the teeth from the plate and set them in their respective places in the compound. Then burnish a piece of lead foil to the model so that hot wax will not adhere to the plaster. Then close the articulator, and with a hot spatula wax the teeth firmly to the foil on the model and cool the wax. Then remove the teeth from their position in the compound and finish waxing up. In this way the teeth may be quickly, easily and accurately transferred from an old to a new plate. This course is advisable where a plate that has already been vulcanized two or three times needs repairing.—*Pacific Coast Dentist*.

Stockwall (C. T.) on the Use of Nitrate of Silver in the Treatment of Root Canals.—I am experimenting, thus far successfully, with its use in the treatment of putrescent pulp-canals. We have a class of molars where, for various reasons, it is nearly or quite impossible to reach the apex of one or more canals with the desired thoroughness and certainty. In short, all we can do is to do "the best we can." These are the cases that suggested to my mind the nitrate of silver treatment.

With the rubber dam in place, I introduce into the chamber and carry as far as possible into the canals, a strong solution—fifty per cent. and upward—of nitrate of silver, afterwards sealing in the chamber a pledget of cotton saturated with the same, and let it remain for a day or

two. Then fill as successfully as possible with such material as circumstances indicate. The object, of course, is to thoroughly sterilize the desired territory, and I have a theory that the action of the drug upon the dentine and the contents of the canals and tubuli is such that we have permanent antiseptic condition.—*International*.

Browne (W. G.) on Making Gold Plates without Swaging or the Use of Dies.—He described his greatly simplified method of making partial gold plates, using No. 30 gauge pure gold, which he burnishes directly upon the plaster cast, using marble dust and plaster, half half, for the model. He strengthens and stiffens the piece by soldering platinum wire all around it, using enough solder to make an even surface. He described a piece recently made, for which he placed Richmond crowns on the four superior incisors with gold crowns on the cuspids. On each side he telescoped a second removable crown over the cuspid, attaching a saddle bridge carrying four posterior teeth. The saddles were connected by a band, one-half inch wide, of gold across the roof of the mouth at the posterior portion of the saddles. No dies were used, the gold being burnished on to the plaster models, and stiffened with platinum wire across the band and around the edge of the saddle bridges. The piece is removable by the patient, and is worn with great satisfaction.

Another piece made after the same plan was a partial lower plate, with the right anterior teeth in position. In this piece the gold was carried across the anterior teeth, a double plate being used, stiffened with triangular bits of platinum between the two plates, the inner piece being not quite so broad as the one next to the teeth; solder was used only at the points where the platinum was inserted, allowing the rubber covering the lingual surface of the piece to flow between the two thicknesses of gold, giving a strong attachment.—*Register*.

Clippinger (S.) on Aromatic Chloro-Aristol.—For the treatment of dead and infected teeth or roots of teeth, also for alveolar abscesses with or without fistula, the above is the name I have given to the following combination:

Aristol,	•	-	-	-	-	-	-	-	1 drachm.
Chloroform,	-	-	-	-	-	-	-	-	$\frac{1}{2}$ ounce.
Oil of cassia,	-	-	-	-	-	-	-	-	10 minims.

Owing to its gummy nature, it cannot be used with a syringe, but with a smooth broach wrapped with cotton fibres it can be very readily forced through the root-canal, after properly enlarging it.

A blind abscess at the apex of a root can thus be successfully treated, even where there is no drainage; in fact, there is no need of drainage,

one or two applications being all that is needed. I have treated teeth by this method now for over ten months, and I have the first failure to find or hear of. One application is all that is needed for an infected root-canal, and I find it a capital dressing for an exposed nerve before capping it.

Where I use the preparation for abscesses, I do not use anything else; there is no need of anything further. Be sure to get it through the apex of the root. When you want to apply the treatment the second time, pack the root-canal with cotton saturated with the remedy until the next sitting, and finally fill the root with chloro-percha, using cotton fibers that are damp with the preparation as a carrier for the chloro-percha. Should it go through the apex a little, it is better than to not quite fill to the end of the root. I shall be pleased should it prove to be as useful to my colleagues as it has been to me.—*Cosmos*.

Freeman (S.) on the Use of Gutta-Percha as a Root Canal Filling.—I will not explain the different methods employed, nor the treatment prior to their filling, but will state my mode of filling in a very concise manner. After thoroughly treating and drying the root-canal, take a Dunn's syringe with a platina point, and inject a drop or two of a saturated solution of hydronaphthol and chloroform in the root-canal. Then take a gutta-percha cone, place it in the canal as near the apex as possible, where it dissolves; in other words make the chloro-percha in the root, then follow this with one cone after another until the canal is entirely filled. If any "chloro-percha" passes through the apex of the root, it no doubt becomes encysted. I have never had any trouble arising therefrom, and I am positive that I have passed some through the apex, because the patients have noticed it by describing to me a slight stinging sensation, which quickly subsides, and no future trouble arises. I have employed this method for a number of years, first using iodoform and chloroform instead of hydronaphthol and chloroform. I find this method simple, clean, antiseptic, and effective.—*International*.

Mayr (Dr.) on Preparation of Amalgam.—My process is simply this: With a well-ignited coal-fire in my laboratory stove,—or better, with a charcoal fire,—the crucible, first rubbed over the inside with borax, is gently heated and the tin melted first, then the silver is added in small pieces, then the melting mass, which is kept at as low a temperature as possible, is stirred with a clay pipe-stem or an oak stick. As soon as the silver is melted, the gold, or copper, whichever is used, is added,—the copper in the form of wire rolled as thin as possible. As soon as the melting is complete it is quickly turned into a cold ingot mould; then all that remains is to file with a somewhat coarse file, and remove bits of steel with a magnet, and the alloy is ready for use.

Two formulas, which I make constant use of, are given,—viz :

Silver	55 parts.	Silver	45 parts.
Tin	40 “	Tin	45 “
Copper	5 “	Gold	10 “

One gives a black amalgam, the other a light-gray ; both have good edge-strength, shrink but little, and take a good polish. I have made many others, but these are my main reliance.

The four metals named are the only ones I consider of value. Platinum seems to me to be nearly or quite inert, and zinc, while it gives whiteness, gives also a greasy feel which I detest, and I suspect it tends to cause weak edges and the spherical form in crystallization. Of the latter I am not definitely certain, but do not now use it in my alloys.—*Extract International Journal.*

Vaughan (E. R.) on Building Corners on Devitalized Incisors.—My method of constructing corners on dead incisors may not be new, but with me it has been so successful that I give it for the benefit of those who are looking for a better way of raising that class of teeth than the often unsuccessful method of “building up” with foil and the mallet.

After the roots have been treated, the apex successfully filled, and all soreness has passed away, cut away with a sandpaper disk, all uneven edges, till you have brought the enamel margin to a perfectly flat surface. Enlarge the canal for about two-thirds its length, and fit snugly a pin of fine gold, allowing it to project to the biting edge of the tooth. Remove the pin, take a piece of pure gold plate, a little larger than the surface of the cavity, lay it over the surface and drill a hole corresponding to the enlarged nerve canal, start the pin through the hole and drive to place. Remove pin and plate and solder together. Replace, and with a corundum wheel or engine, grind the plate even with the margin of the enamel. Build up the corner as you desire it when finished, with wax, remove, and insert in plaster and marble dust, the pin down. After the investment has thoroughly hardened, work out the wax and melt into the mold, formed by its 22 solder, “spatting” it down with a steel instrument before it cools. Before finishing, it may be well to try the piece in, and grind down any places on the surface which are not perfectly level with the enamel, finish, cement to place, and you have a corner which will not scale or pit, and will outlast any corner which can be built of foil. I have been trying this method in all such cases for five years, and have never had a failure to my knowledge.—*Items.*

Mathews (A. A.) on An Elastic Matrix for Amalgam Fillings.—This consists in placing a piece of elastic tubing of suitable length and circumference over the tooth after the cavity has been filled. In referring to the mode of application, he said: “I have tubings of

different diameters varying from one-eighth of an inch to three-eighths of an inch, and having selected a size suitable, I cut off a portion equaling the length of the tooth which is being treated. For some time I occasionally met with considerable difficulty in passing the rubber over the tooth, particularly in the case of a large crown; to obviate this I arranged a pair of converging forceps, which has greatly reduced this difficulty. With regard to the amalgam, I prefer to use it in a firm plastic condition, rather than in a soft or dry state, and to leave the filling slightly contour, but not overlapping the edge of cavity. After the tubing is placed over the tooth, I smooth the outside of it with a bur-nisher and finally direct the patient to remove the ring in, say, three hours.

Only in cases where the tooth is in actual contact with its neighbor, or the division is exceedingly small, can this matrix be said to be unap-licable, that is to say, when there is insufficient room to pass the rubber in between the teeth. Discretion in its use is called for in interstitial cavities, when the thickness of the matrix might leave an undesirable division. It is available for any lateral filling, even to the lingual sur-face of a lower incisor. Because the elasticity of the rubber makes the compress self-adapting, I consider it is especially useful in necked teeth, and also when the margin of the cavity is on an irregular plane. A clean cervical edge is left, and very little polishing is needed as it leaves a smooth surface and close edges. In conclusion, it is very valuable when you cannot see your patient a second time, and generally helpful to a busy man.—*Jour. Brit. Asso.*

Kirk (E. C.) on Argenti Nitras on Blotting-Paper.—The method of using nitrate of silver on blotting-paper, as suggested by Dr. C. N. Peirce in the *International Dental Journal*, for February of this year, I find is open to an objection which may be easily obviated. The method suggested by Dr. Peirce is to saturate blotting-paper with a forty per cent. solution of nitrate of silver, which, after drying, is to be cut up into small pieces of convenient size for application to cavities with hypersensitive dentine.

Dr. Peirce states that in experimenting with stronger solutions of silver nitrate upon cotton fiber he found that the latter was entirely destroyed when dried. This is the point. Exactly the same oxidizing action occurs even with weaker solutions, requiring only a greater length of time. The contact of silver nitrate with vegetable fiber of any sort involves not only a destruction of the fiber, but also of the silver nitrate, so that such a preparation in a short time entirely loses its desirable properties.

With dilute solutions of silver nitrate there may not be a sufficient

quantity of the salt in proportion to the fiber to destroy the integrity of the latter, but the excess of organic matter present will lead to the complete decomposition of all the silver salt present, so that in any event, whether a weak or strong solution is used, it will eventually become inert. This difficulty may be easily overcome by using thin asbestos felt, such as Dr. Peirce some years ago recommended as a cavity-lining in connection with zinc-phosphate fillings, as the vehicle for carrying the silver nitrate. The silver salt is without action upon the asbestos fiber, and may be used in much greater strength even to the point of saturation, without any subsequent decomposition of the felt. Before saturating the felt with the concentrated silver solution it should be heated to redness in a Bunsen flame, to burn out any organic matter with which it may be accidentally contaminated, and then charged with silver nitrate as indicated. The resulting felt furnishes a most satisfactory means for applying this valuable agent without danger to the surrounding soft tissues.—*Cosmos*.

Palmer (S. A.) on Filling Roots of Teeth with Paraffine by Means of Electricity.—Dr. Palmer says he experimented with the Gramm method of root filling, with a single electrode, but found it unsatisfactory. He says: To my mind the hindrances came from a lack of conductivity of the fine point of copper. It was evident that two electrodes were necessary, one to dry the cavity or canal, the other to heat the point, when it is to be inserted to remain. I made an electrode of the usual pointed form, with the addition that the canal point, as well as a part of the electrode, was formed of platinum. With this addition, perfect root filling is a possibility. When the point is separate, it is not an easy task to insert and remove it, perhaps a dozen times or more, to dry the canal or volatilize the oil. With a stationary point there is no trouble. As seen through the glass, when driving moisture from the canal, it appears to be very difficult to boil the water the entire length of the metal, while with the lengthened electrode and a reciprocating motion—not to draw the point from the canal, but simply to free it from contact with the walls—it becomes heated instantly, and as may be imagined, either water or oil can be removed as far as the point reaches. Nay, more; by capillary attraction, in a degree the moisture in fine roots follows the electrode, and is thus evaporated.

The points I have used are made of pure silver or gold, first fitted to the canal, the end in the pulp chamber being bent at a right angle, so as to be drawn readily with a fine excavator. The point is warmed and coated with paraffine. When the canal is dried, the filling point is introduced, the end touched with the blunt electrode, and it is carried to its place. One thing is certain: where the rubber dam can be used, roots

can be sealed up with any resin or gum that will flow with moderate heat. Should it be necessary to remove the root filling, apply the electrode and draw out the point, and with a fine broach the canal can be cleaned of the surrounding filling.

I believe this to be the best and quickest method of filling roots that has yet been devised. Not only is the root perfectly filled, but there is no danger of forcing any of the filling through the end of it.—*Dental Practitioner*.

Townsend (E. L.) on Partial Lower Dentures.—No form of plate seems to present so many difficulties of construction and use as those intended to supply the missing teeth of the lower jaw. The loss of either the bicuspids or the molars allow the adjoining teeth to lean toward the space, and render the removal of an impression nearly impossible without some damage to it. It is, however, possible to get a good impression of a case by banding the teeth with rings of modelling compound. The impression is taken in plaster with these rings in place. On removing the plaster and rings separately, the latter may be replaced in the impression and the cast poured. This ordinarily will give a true model.

If the upper teeth are remaining they sometimes elongate to such an extent as to render an articulation nearly impossible. In such cases the free use of the wheel in grinding the articulating surfaces to an approximation of normal length will be found beneficial, and, as these cases are at the best difficult to wear, all the aid possible should be given the patient, and anything that tends to make the case useful is eminently proper. In articulating the teeth the pressure should be more on the inner than outer cusps, and inclined planes must be avoided. The nearer they approach the condition of a natural set of teeth well abraded, the more comfortable will the appliance be for the patient. Sharp cusps are not, as a rule, useful in artificial teeth.

In many cases it is desirable to reduce the pressure on the gum to a minimum, and when it is possible a crown should be constructed with a shoulder, and cemented on the tooth. A band of clasp metal should be formed to fit the crown and rest on the shoulder. The band being made a part of the plate. This form of plate is open to some objections, but on the whole makes a fairly good denture.

In cases where all the molars are missing, and roots of either the bicuspids or cuspids remain, a combination of crown and plate can be used to great advantage. If there are no roots that can be used, a tooth can be ground down and a gold cap cemented to it and a gold crown made to telescope it; the crown becoming a part of the plate. This combination of crown and plate will be found very satisfactory in many

cases, and will in every way compare favorably with bridge-work as to utility, and be immeasurably superior in point of cleanliness.—*Pacific Coast Dentist*.

Gardiner (F. H.) on Capping Pulp.—The safest method of destroying the pulp of a temporary tooth is to first cap it with oxychloride of zinc. The necessity for capping the pulp of a temporary tooth exists only when a portion of the crown has been destroyed prior to the fourth or fifth year; the resorption of the root of a deciduous tooth not usually beginning until a later period.

I shall have nothing to say concerning the preliminary treatment of the pulp of a tooth, presuming that before capping is attempted, the pulp will be in a normal or at least a healthy condition.

The pulps of adult teeth should be capped, or efforts to save the pulps should be made in all oral teeth, those exposed to view, no matter at what age they may become exposed. The pulps of teeth that are exposed posterior to the second bicuspids, if any doubt exists as to their being saved by capping, should be destroyed at once. This applies to nearly all ages above the seventeenth or eighteenth year.

The modus operandi of capping.—After application of the rubber dam, perfect dryness of the cavity and surface should be obtained. Over the surface of the pulp a thin film of Canada balsam should be placed, or a film of copal ether varnish. After the evaporation of moisture has taken place, a very thin paste of oxysulphate of zinc should be gently manipulated over and beyond the point or points exposed.

When this is sufficiently hardened, a portion of the surplus may be trimmed away and the whole cavity filled with oxyphosphate of zinc. This must be allowed to harden for a period of not less than thirty minutes. When the patient is ready to leave the office and before the rubber dam is taken from the tooth, the surface of the filling should be painted with a solution of copal ether varnish. The use of a blast of hot or cold air will cause this to rapidly become dry.

Care must be taken in all such cases to avoid filling the cavity too full, so as to produce no pressure on the pulp in mastication, or when the teeth come together, after wedging, in case it should be a proximal cavity.

This, gentlemen, is the simplest method for capping the pulps of teeth that I can deliver myself of, and I commend it to your careful consideration with the hope that no pulp will be capped by any one unless there is future need for it.—*Review*.

Lundy (E. A.) on Treatment of Alveolar Abscess.—My first step is to obtain a free opening into the pulp cavity, using the engine and such burs as will not cause pressure on the contents. I then remove

all the dead pulp possible, with a fine and good-tempered nerve branch. I next wash out the canals with concentrated witchazel, applying it with one of Dr. Dunn's bulb syringes, being careful not to force any through the apex. If perchance any should go through it is not an irritant, as alcohol would be, and that is the reason I use it. When I feel confident that the canals are free of the septic contents, I dry out thoroughly with hot air, and, if necessary, enlarge them with the Morey canal drills, commencing with the large sizes and tapering down as they near the apex.

Should there be pericementitis present I do not enlarge the canals until the next sitting. I cleanse thoroughly with a five per cent. medicinal pyrozone and then inject (forcing a small amount through the apex) a seven per cent. solution of chemically pure sulphuric acid; and it would possibly have a more antiseptic action if the solution was made with cinnamon water, as suggested by Dr. Harlan. Always have a bicarbonate of soda solution convenient for immediate use.

I have found, as a rule, that one treatment of the acid is all that is necessary to check these abscesses. After washing out with the soda, I fill the canal with iodoform deodorized with oil of cassia, packing the canal loosely with cotton and closing the opening tightly with gutta-percha or cement, to effectually exclude the fluids of the mouth—as I am careful not to allow any saliva to enter during the treatment, and I always place the rubber dam. By using iodoform properly one is not troubled with the formation of those mephitic gases. I leave the iodoform in at least three days, and sometimes a little longer should there be no inconvenience.

Two treatments with the iodoform and cassia is all sufficient.

If there is a fistulous opening I cleanse with pyrozone, afterwards using the sulphuric acid treatment.

I inject the seven per cent. solution of sulphuric acid directly through the fistulous opening. As a rule I inject a three per cent. cocaine solution first to avoid the pain caused by the acid. I usually allow the acid to remain at least three minutes before injecting the soda. I have found this treatment of abscesses simplifies matters very much, as one treatment is, as a rule, sufficient. I know many claim that the cause being removed nature will do the rest. A little help will hasten the cure very much, and oftentimes saves complications.

There is another class of teeth which at times requires our utmost skill and patience; being those with putrescent pulp, there being just enough vitality to give pain at the least movement towards extirpation, and yet not enough to absorb a devitalizing agent. In treating such cases, I first wash out with hot water and then with a three per cent.

medicinal pyrozone, next injecting a ten per cent. solution of cocaine, or, preferably, Harding's anæsthetic, and remove the nerve with an extractor. Should there be a remnant at the apex, or an extreme hypersensitive condition, I arrest the hemorrhage with concentrated witchhazel and apply Dr. Black's "1, 2, 3," mixture, closing tightly for a couple of days, when, as a rule, the remainder can be removed; and, after cleansing with the pyrozone, apply the iodoform compound, and after five days it can be filled in the usual manner.

Why do I use that much-decried iodoform that Dr. Miller and many others of the scientific men have found in their provings of such little value as an antiseptic? I use it because I have not found, after years of experimental knowledge with numberless antiseptic remedies (not experimental in the manner given by those scientific men, but in actual practice in the pulp cavity), any remedy so thoroughly reliable. I have had patients come in with the lower molar in such an abscessed condition and with a fistulous opening existing, and, as they could not give me time but for one treatment, I would remove as thoroughly as possible all septic contents and then pack the pulp cavity and canals with iodoform, closing the cavity with cement. And I would not see them again for three months, when I would find the fistulous opening entirely closed and the tooth ready for a permanent filling.—*Extract Pac. Coast Dentist.*

Thompson (A. H.) on the Dangers of Crown and Bridge-Work.—The great dangers in the practice of the day lie in the direction of crown- and bridge-work, and the center of these is the band under the gums.

Much discussion has taken place as to the best form of this band; but the average dental mechanic goes right along, regardless of the warnings as to the transgression of anatomical or physiological laws. He goes right on making his band as deep and tight fitting to the root as possible. There is serious danger in this reckless use of the band, for it is sure to impair the serviceability of the teeth and of the artistic work they support.

There is a possible reaction setting in on account of the injury and failure that deep bands have caused, but there is still too much prevalence of the practice.

Every dental student knows that the septum of alveolus that runs downward into the interstitial space between the teeth should be carefully preserved; but it is usually injured so much by the deep band as to cause its complete absorption. Then the space becomes the seat of pyorrhœa, which leads to the loss of the tooth. Or again, bands upon the anterior teeth are too often made with an utter disregard of the anatomy of the parts. The space between the gum margin and the

alveolus on the anterior face of the incisors is very narrow, although the space is generally much wider on the posterior portion of the neck.

But bands are usually made wide all around (disregarding too often even the dipping down of the septum), and when driven up will in time cause the absorption of the alveolus. The limit of a band should be just within the free margin of the gum, and it should not touch the alveolus. Then again, there is too much cutting away of tooth substance in order to fit bands tight and perpendicular to the crowns. Pulp must sometimes be sacrificed to allay the sensitiveness and aching which will arise from this useless grinding, and that is a great wrong. In addition, the angle at which teeth stand often prevents driving a band on perpendicularly, and the consequent strain distorts the position of the teeth and leads to subsequent periosteal irritation and absorption. There is a limit to this tight-fitting of bands, which cannot be disregarded, and a loose-fitting band may often cause less injury by not producing unnatural strain. This is really a serious matter, and it is still an open question as to what is the best general practice concerning bands. To the expectation of usefulness of crown- and bridge-work there are limitations which cannot be ignored. While admiring the achievements in this branch of dental jewelry, and the progress that has been made, to the cautious mind there are elements in that progress that make it unsatisfactory.

The reckless disregard of its limitations suggests grave doubts as to the practical benefits to be conferred by some of these high-class operations. We have disagreeable misgivings that the progress of the day is too much toward high art, the production of conspicuous dental jewelry, regardless of the physiological principles and the underlying scientific principles of such operations. There is too much art and not enough science about it. The worship of art leads to overtaxing nature. The teeth are asked—perhaps expected—to support more than nature ever intended that they should. A given root is designed to support one crown, and no more. If the burden is multiplied, it is only a matter of time when nature will succumb and the pier teeth be lost.

Another matter that has not received the consideration it deserves in connection with bridge-work, is the loss of the interstitial motions of the teeth used for support, which must result in periosteal irritation. There are several slight motions of the teeth in the sockets: (1) interstitially from one proximate tooth to the other; (2) sideways; (3) partial motion in the sockets; (4) perpendicularly in the sockets. These motions arise by use in mastication and are imperceptible to sight or feeling, but they are more or less valuable to the health and usefulness of the parts, and are prevented almost completely by binding the teeth together in bridge-work. Mechanical accessories should be employed to accommodate these motions, but that would perhaps be impracticable.

In regard to this, as to all other mechanical operations in the mouth, it would be better to study, to understand in a scientific manner, what we attempt to do, not to overtax nature, and to be very sure we do not transgress the hard and fast physiological bounds in order to produce highly artistic results. —*Extract Western Journal.*

EDITOR'S NOTES.

CHEAP TOOTH BRUSHES AND TOOTH PICKS.

CHEAP tooth brushes are responsible for many obscure throat, stomach and intestinal ailments. The bristles are only glued on and come off by the half dozen when wet and brought in contact with the teeth. But recently an operation for appendicitis upon a patient, at Albany, N. Y., revealed the fact that the trouble was due to the presence of tooth brush bristles. The market is flooded with these cheap goods and the unwary customer buys them because they are cheap and he has not been taught the difference between the construction of poor and good, or the danger that lurks in the shedded bristle. We, as teachers of the public, should never miss an opportunity to recommend reliable makes of tooth brushes, nor fail to point out the dangers of the poorly constructed article. A recent case in practice illustrates other undesirable results from loose bristles. A patient presented, complaining of very sore tooth and much pain about it. Examination revealed undecayed superior bicuspid, sore to the touch, somewhat loosened, and a high state of inflammation and some swelling in the surrounding gum tissue. In exploring the open pocket in the gum about the neck of the tooth a tooth brush bristle was dislodged. The case was treated, the periosteal and gingival inflammation gradually subsided and the tissues returned to their normal condition.

Probably every observing dentist has noticed this same trouble induced by splinters of wooden tooth picks, minute pieces of rubber dam, etc. In regard to tooth picks, the wooden pick is an abomination, but again its presence prevails on account of its cheapness. The gold tooth pick is "a thing of beauty," but not always "a joy forever," as its continuous use is liable to prepare the teeth for a visit to the dentist. A good quill pick is the best pick and every dentist should impress this upon the mind of the

patient. A little advice of this kind is not only beneficial to the patient, but in various ways to the dentist himself.

THE OHIO STATE DENTAL SOCIETY.

THE present prospects for an extra good meeting of this society are flattering. The Executive Committee have been faithfully working in the interests of the society and the program will be completed in a few days. Arrangements have been made to hold all meetings and clinics at the Neil House, Columbus, a large, well lighted room having been secured specially for clinics and exhibits.

The following is but a portion of the program to be presented but as much as can be given at this writing on account of several delayed responses from members who are to write papers or clinic.

ESSAYS.

President's Address, - - - DR. G. H. WILSON, Cleveland.
The Bonwill Method of Articulation,

DR. GRANT MOLYNEAUX, Cincinnati.
Sulphuric Acid for Opening Root Canals,

DR. J. R. CALLAHAN, Cincinnati.
Report of the State Board of Dental Examiners,

DR. GRANT MITCHELL, Canton.
A Serious Paper, - - - DR. C. M. WRIGHT, Cincinnati.

"Vis Medicatrix Naturæ," - DR. W. H. WHITSLAR, Cleveland.

Subject to be announced. DR. L. E. CUSTER, Dayton.

Congenital Deformities of Superior Maxillary,
PROF. T. C. HOOVER, M.D., Columbus.

Therapeutics of Tincture of Iodine and Aconite in Pericementitis, - - - DR. W. I. JONES, Columbus.

CLINICS.

Bonwill Method of Articulation, DR. GRANT MOLYNEUX, Cincinnati.

Demonstration of The Hollingsworth System for Crowns and
Bridges, - - - DR. G. F. HOUSER, Kansas City, Mo.

Making and Setting Crown made in Downey Furnace,
DR. L. L. BARBER, Toledo.

Porcelain Inlay, etc., - - - DR. GRANT MITCHELL, Canton.

Exhibition and Demonstration of the Custer Electrical Cabinet,
DR. L. E. CUSTER, Dayton.

Arrangements have been completed for cheap railroad transportation of one and one-third fare to all who secure a certificate of the agent when purchasing ticket to Columbus.

No dentist in Ohio can afford to miss this meeting, as the clinics and papers will be of special value. Cross Tues., Wed., Thurs. and Fri., Dec. 5th, 6th, 7th and 8th, 1893, off your appointment book and assist in making this the largest and best meeting ever held.

NEW PUBLICATIONS.

OUTLINES OF PRACTICAL HYGIENE adapted to American Conditions.

By C. Gilman Currier, M.D., Visiting Physician to the New York City Hospitals; Fellow of the New York Academy of Medicine, etc. New York: E. B. Treat, Pub., 1893. Cloth, Price \$2.75.

The intelligent and scientific utilization of all known means for prolonging life and preventing diseases has become a specialty in itself. Preventive Medicine is not only to be the medicine of the future, but is fast becoming the medicine of to-day.

Recognizing this fact, and in response to a large and growing demand, we call special attention to the above indicated volume, which upon investigation will be found to embody the results of the most profound research. It is by far the most recent, scientific, agreeably written and practically instructive, of all the existing books on the subject.

Although a practical sanitarian, and expert specialist, the author before permitting the book to be issued, submitted his manuscript to the criticism of experts in the various departments of the great field which the book covers. We accordingly commend it emphatically as a volume fully abreast of the times, in which accepted truths only are admitted and opinions advanced in accord with leading thinkers and workers.

The book embodies much matter based on the most recent American and European literature that no one can afford to dispense with, who cares to keep in touch with the scientific progress of the day.

A NEW ILLUSTRATED DICTIONARY OF MEDICINE, BIOLOGY, AND COL-
LATERAL SCIENCES. P. Blakiston, Son & Co. announce the
early appearance of this valuable work.

Dr. George M. Gould, already well known as the editor of
two small Medical Dictionaries, has now about ready an una-
bridged, exhaustive work of the same class, upon which he and a
corps of able assistants have been interruptedly engaged for sev-
eral years.

The feature that will attract immediate attention is the large
number of fine illustrations that have been included, many of
which—as, for instance, the series of over fifty bacteria—have
been drawn and engraved especially for the work. Every scien-
tific-minded physician will also be glad to have defined several
thousand commonly used terms in biology, chemistry, etc.

The chief point, however, upon which the editor relies for
the success of his book is the unique epitomization of old and new
knowledge. It contains a far larger number of words than any
other one-volume lexicon. It is a new book, not a revision of the
older volume. The pronunciation, etymology, definition, illustra-
tion, and logical groupings of each word are given. It is espe-
cially rich in tabular matter, a method of presentation that focuses,
as it were, a whole subject so as to be understood at a glance.

The latest method of spelling certain terms, as adopted by
various scientific bodies and authorities, have all been included,
as well as those words classed as obsolete by some editors, but
still used largely in the literature of to-day, and the omission of
which in any work aiming to be complete would make it unrelia-
ble as an exhaustive work of reference.

The publishers announce that, notwithstanding the large
outlay necessary to its production on such an elaborate plan, the
price will be no higher than that of the usual medical text-book.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE. By
George W. Warren, D.D.S. Second revised edition. Philad:
P. Blakiston, Son & Co., Publishers, 1893. Price \$1.00.

This compend of 158 pages contains such noteworthy points
upon these subjects as are of interest to students. While the
treatise is necessarily brief, too much so to be used alone as a text
book, yet quite an amount of useful information is given and the

book will prove an aid to the student in assisting him to fix in mind some of the salient points of each subject treated on.

BOOKS RECEIVED.

A Dictionary of Medical Science, with the Pronunciation, Accentuation, and Derivation of the terms, by R. Dunglison, M.D., LL.D. Twenty-first edition. Philadelphia: Lea Brothers & Co., Publishers, 1893. Price, cloth, \$7.00.

BRIEFS.

— IN using trichloroacetic acid the addition of two drops of oil of cassia to a three per cent solution is desirable.—*Review*.

— DR. Maye says he does not believe in working amalgam as dry as some advocate. He wants it plastic enough to pack well, and likes to have it packed before crystallization has far advanced.

— KEEP your laboratory clean, have a rack for your files and scrapers, and keep them there. Do not have them lying around on your bench covered with plaster so deep it is almost impossible to find them.—*H. W. Goodell*.

— I never willingly extract a tooth for a nervous child without an anesthetic, for the simple reason that when you once hurt a child you lose his confidence and greatly increase your difficulties on the next occasion.—*W. Dougan*.

— DR. Browne says: In making a Richmond crown, when the porcelain is put in position there is often a space between it and the band. If pellets of foil are packed into this space the solder will flow in making a tight joint.

— DR. C. A. Merrill attributes the decay of teeth of women and children to their large use of starchy foods, bread and butter, etc. The dentist, to be worthy of the title of doctor or teacher, should instruct his patients, especially mothers and children, in regard to dental hygiene and the importance of proper diet.

— DR. H. C. Boyd uses English pinless teeth by inserting gold wire in the holes of the teeth, allowing the ends to project sufficiently to solder on a continuous band, investing in plaster and asbestos for soldering. This makes a strong but not cumbersome piece, being waxed up, invested and vulcanized as usual.

— NEVER give stimulants in a case of severe hemorrhage. The faint feeling, or irresistible inclination to lie down, is nature's own method of circumvening the danger, by quieting the circulation and lessening the expulsive force of the heart, thus favoring the formation of clot at the site of injury.—*Clinique*.

— DR. Albert Lenhardtson, in the *Odontologisk Tidskrift*, recommends, to lessen the pain in adjusting the clamp, that its claws be covered with a piece of rubber skin of corresponding size. In this there is another advantage—the hold on the tooth being stronger on account of the elasticity of the rubber.

— DR. Crouse says: To make gold cylinders, take a sheet of No. 3 foil, fold it evenly until you get it to a ribbon the width of which is the length you want, then roll on an ordinary nerve broach, filed three cornered to a peak, which makes the cylinders I use. They can be rolled to any desired solidity desired in this way.

— BY lining the cavity with aluminum-foil I think you could prevent the darkness of the amalgam from showing. Aluminum has the great advantage of not alloying with mercury, but I have never heard that it has been used in dentistry. It makes an excellent lining and a perfect protection against anything showing through.—*Dr. Mayr*.

— IN filling an impression for a partial plate where there is danger of plaster teeth breaking, small wooden pegs, such as used by shoemakers, placed in the tooth sockets with the plaster will prevent any such accident; and will also be found to give no resistance to cutting teeth down when about to imbed model in flask.—*A. A. Burns, Dom. Jour.*

— IN making plates there is one thing often overlooked, and largely responsible for the effect on appearance of upper lip. There is not a solitary case where there is not loss of the cuspid eminence, if the cuspids have been extracted one year or more. The plate should be made fuller and higher over the cuspid teeth. The fullness should not come under the nose.—*L. P. Haskell*.

— I desire to make reference to one desirable feature of ventilation which I adopted. I had a heavy piece of plate glass framed, about eighteen inches or two feet high, placing it inside of the window. When the window was raised the air would come in

and pass upward and not bring the draft direct on myself and patient. It is so efficient that I feel like mentioning it now.—*T. W. Brophy, Review.*

— To trim a gold or other metal band, or the modern ready-made metal crown to follow the outline of the gum, set it as nearly as possible in place and paint with chloro-percha, repeating the process with each adjustment. The paint dries “while you wait,” and as only the exposed metal is coated, trimming the uncoated part off makes it possible to approximate perfection.—*Odontographic Journal.*

— SOOT AS A DISINFECTANT.—Soot now is added to the already lengthy existing list of substances which act as disinfectants. Charcoal has long been recognized as possessing purifying qualities, and soot which is a like element in a different form, has a great power of absorbing foul gases and clearing the surrounding atmosphere. It certainly is an economical and easily obtained disinfectant, and if freely sprinkled about acts in a quick and effective manner.—*Exchange.*

— BOTH ether and chloroform are solvents of iodoform, and will remove every trace of it and its odor if the hands are washed with a trifle after washing with soap and water. The hands have a peculiarly clean feeling after using chloroform, dry instantly and require no further washing. The proper way for the nails, is to dip a piece of soft wood (a match whittled flat is handy and efficient) in chloroform, and with this clean under the nails. I have derived great comfort from applying this method in daily practice.—*Dr. W. Washburn.*

— MUCOUS PATCHES IN THE MOUTH.—A certain amount of relief may be afforded by the frequent use of a gargle and mouth wash, as follows:

℞	Acidi Borici	-	-	-	-	2 drachms.
	Glycerini	-	-	-	-	2 ounces.
	Tinct. Myrrh	-	-	-	-	1 ounce.
	Aq. Rosæ	-	-	qs. s. ad	-	8 ounces.

Mix.

—*Western Med. and Surg. Rep.*

— DR. Skeede says, for my base-plate I use common tea lead, using two or three thicknesses, as occasion requires, which, by the way, does not require more than half the thickness usually given

to rubber plates, waxing where thickness is needed. After flasking and separating I remove all wax carefully, then usually cover both casts with very thin tin foil, but always cover the model. Next I soap well and pack, thus vulcanizing my rubber between metal, insuring a nearly finished plate when it comes from the vulcanizer. I never boil my rubber plates.

— At the Georgia State Society Dr. T. P. Hinman described the process of making aluminum crowns with the Morrison stamping outfit. With this machine an aluminum crown could be made in a few minutes, the cusps stiffened with amalgam, (as it cannot be soldered) and you get a cheap crown that could be used where patients cannot pay for a more costly one. Dr. Hinman also spoke of the use of seamless ready-made gold crowns and advocated their use claiming to get as good fit with them as by first making and fitting a band and making the crown step by step and with much less trouble.

— A handy sand-paper mandrel may be made out of a cork for use on rubber plates in finishing process. Take common quarter-taper cork. Trim up in cone shape on the lathe. By means of dental mechanical saw, make a slit through apical end of cone, about half way down. A piece of sand-paper, a little wider than the opening, bent back at one end for retention, and placed in the mandrel, will complete it. This will be found more pliable than common brass mandrel. It conforms more with depressions in outline of plate, retains sand-paper better and does not heat plate so quickly.—*A. A. Burns, Dom. Jour.*

— ANTIDOTE TO HYDROCYANIC ACID.—Since hydrocyanic acid is oxidized to oxamide by hydrogen peroxide, experiments were made by P. Krohl to see if the latter substance could be employed as an antidote in the case of hydrocyanic acid poisoning. These experiments are reported as successful, the acid, in larger quantity than the fatal dose, having been administered to dogs and cats, and its effects stayed by means of hydrogen peroxide. The experiment could be made daily for weeks together without permanently injuring the animal.—*Druggist's Circular and Chemical Gazette.*

— To counteract the injurious effect of acid secretions in the mouth, Dr. Kirk finds that magnesium hydrate has many advan

tages over bicarbonate of soda, chalk, or lime water, because its action lasts longer, and it gives a film-like alkaline coating to the surfaces of the teeth. He uses a preparation known as Phillips's milk of magnesia, which consists of magnesium hydrate held in suspension in water. A teaspoonful of the preparation is taken into the mouth and allowed to remain for a few minutes; by this means a sufficiently adherent coating is obtained to protect the teeth for a period of some hours. He recommends its use three times daily after meals, and finds, when used in the morning and evening, it is markedly beneficial in retarding erosion. Saliva tested three hours after the application of magnesium hydrate he found distinctly alkaline.

— At the Manchester Odontological Society Mr. Whittaker showed two small pieces of gold which had worked their way through the gum and cheek of a patient which had apparently come from a tooth that had been filled. There was no degree of inflammation, nor did the patient experience any great amount of pain.

Mr. G. Campion asked whether there was any great sensitiveness in the tooth, any appearance of a fistula, or whether Mr. Whitaker had traced the track of the gold particles, and as to the time they had elapsed before they came through the cheek.

Mr. Whittaker said he believed the filling had been in about a couple of years. He could not trace its track. It had, however, traveled down between the anterior alveolar wall and the side of the jaw, and not through the bone of the jaw. There was very little inflammation.—*Brit. Jour.*

OUR AFTERMATH.

DR. G. E. HUNT, Indianapolis, Ind., has accepted a lectureship on Histology and Pathology in the Veterinary College of that city.

DR. J. E. ROBINSON, Cleveland, O., has accepted the editorship of the dental department of the *Medical Argus*, a college journal issued quarterly.

TRUE TO NATURE.—*Nurse* (showing new baby to proud father)—“How like his pa, Herr Baron! Your very image.”

Baron.—“You think so?”

Nurse.—“No hair, no teeth—just the picture of you.”

WHAT IT COSTS.—We are informed that it costs the people of the United States each year, to be born, \$22,000,000; to be married, \$300,000,000, and to be buried, \$75,000,000; while to get drunk the people pay \$900,000,000. 'Tis also said that this bill for drunks is larger than the bill for all the bread and meat consumed by the same people.

DISEASE GERMS UNAVAILABLE.—The Postmaster General has issued an order to the effect that disease germs, or other things of like character, no matter how securely put up, are of the character of poisons and extremely dangerous to health, and that they are absolutely unavailable. Postmasters are instructed to see that no such things are allowed entry into the mail.

A SEVERE LOSS.—During the terrific storm on the Gulf coast, Oct. 1st, the dental office of Dr. W. E. Walker, son of Mrs. J. M. Walker, (Mrs. M. W. J.) was completely swept away. His library, account books, instruments, furniture and everything except the remains of the Wilkerson chair, found under four feet of sand on the beach and a few instruments recovered, are all gone. The office building was built over the beach, the front part on a high bluff protected by a breakwater, the rear on piling ten or twelve feet high. The bluff caved in and the building collapsed, then broke up, part going out to sea, part buried in the sand.

LET PROFICIENCY BE THE WATCHWORD.—The three-years rule calls for a better class of students. The day of the "jack knife" mechanical genius has passed. What dentistry needs and should have is a class of men with skillful brain as well as skillful hands. The fact that a man can insert a nice-looking gold filling or construct an artistic bridge or crown does not constitute him a dentist. See that a strict observance of preliminary examination for entrance to college is enforced, to the end that none but educated men, or at least those educated in the common English branches and capable of comprehending the studies required of them are admitted.—Ed. *Western Journal*.

HOW TO REST.—To understand the way to rest, is of more importance than to know how to work. The latter can be learned easily; the former it takes years to learn, and some people never learn the art of resting. It is simply a change of scenes and activities. Loafing may not be resting. Sleeping is not always resting. Sitting down for days with nothing to do, is not restful. A change is needed to bring into play a different set of faculties, and to turn the life into a new channel. The man who works hard finds his best rest in playing hard. The man who is burdened with care, finds relief in something that is active, yet free from responsibility. Above all keep good-natured, and don't abuse your best friend, the stomach.

A SELF-MADE MAN.—There are probably few dentists in the country who do not at least know of Dr. G. L. Field, of Detroit. The following clipping from one of the Detroit dailies gives an outline sketch of the early professional life of this successful dentist.

"Yes, I've moved again," said Dr. George L. Field, "and I think for the last time. I am just fairly settled in the new Fyfe building at Woodward and Adams avenues. When did I come to Detroit? Oh, well, if you will not betray me I don't mind acknowledging that it was in 1838! However in 1850

I moved with my parents to Missouri and in St. Louis I served a regular indentured apprenticeship with Dr. C. W. Spaulding. I came back to Detroit in 1857 a full-fledged practitioner and began the career at rock-bottom. The fact is I had not one dollar in my pocket. Detroit then had about 40,000 inhabitants and I determined to get a footing here if possible. A friend lent me \$60 and with that modest capital I set up my tent. That is to say for \$8 a month I rented back room in a building on Jefferson avenue about where Newland & Co's fur store now stands. It was owned by the late Zachariah Chandler. I papered the walls, whitewashed the ceiling and bought some second-hand furniture at an auction store. Among these movables were a lounge for which I paid \$1, and an old easy chair, which had to serve as an operating chair. For my carpet I paid seventy-five cents a yard. Of course I had to hew sharp to the line, so I sewed my carpet and laid it myself. There was no attempt to match the figure; that would have been a piece of inexcusably wild extravagance. A common deal table, two or three wood-bottom chairs and a severely plain box stove completed my outfit. Then I hung out my sign and waited for business.

"It was a discouraging experience at the beginning. The first year's work—which consisted mainly of waiting—yielded the gross sum of \$150, perhaps a little under that figure. After paying my rent (\$96 for the year), I had a balance of about \$50 for wearing apparel, board, washing, opera tickets, charity balls, etc., etc.

"After business began to enlarge I acquired a front room one door below my little back office, and staid there a year or two, when I ventured over to the northeast corner of Woodward avenue and Congress street. Three years later I located in the old Odd Fellows' Hall, on the west side of Woodward avenue near Congress, and kept right on there till 1874. The new Williams block at Caddillac Square took my fancy and I went over there for five years. In '79 I moved to the Abstract building. The purchase of that handsome property by The Free Press made another removal necessary, and so at the beginning of August, 1893, after nearly thirty-seven years' continuous practice in Detroit, I find myself in the up-town contingent, where already I have 'entertained' grandchildren of some of the patrons of my youth—friends of a life-time.

Dr. Field is one of the youngest men of his generation. An enthusiastic fisher, and a practical advocate of a genuine annual vacation, he is still an all-round progressive man who enjoys every moment of life and plays his noon-day billiards with all the zest of a beginner in that fascinating pastime. He has been a member of the American Dental Association for thirty-three years, and of the Michigan body for thirty-five years. He has three times been chosen president of the state organization and was a delegate from the American Association to the international medical conference in London in 1881."

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CONTRIBUTIONS.

A CASE IN PRACTICE.

BY GEO. J. DENNIS, M.D., D.D.S., CHICAGO, ILL.

AN interesting case, which presented itself in the practice of the writer, was that in which the left central and left lateral incisor teeth were missing; at least their crowns were wanting, and only one root, apparently that of the left central, remained in the alveolar process, the larger end presenting itself at a point equi-distant from the central incisor and cuspid, as in Fig. 1.



Fig. 1.

For some time previous to the visit of the patient, this root had supported two porcelain facings, which were attached in the manner of a Richmond crown, by means of pin and band. The work had been done nicely, and no fault could be found with it, except that in talking

or laughing, the gold, which necessarily extended between the facings and the labial aspect of the root, presented a very unnatural and disagreeable appearance. This effect was much

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increased by the facility with which the lip moved upward over the gingival surface, exposing it to a considerable degree.

To overcome this unsightliness the old appliance was removed, and an attempt was made to reproduce the natural gum color over the end of the root and between the two facings. After removal, a coin gold band, of No. 29 standard gauge, was perfectly fitted to the root, as represented in Fig. 2, an impression



Fig. 2.

and articulation were taken, with the band in situ, and models were made, after which the band was cut down to the gingival margin on its labial aspect, the facings ground to position on the model, and backed with platinum in the usual manner.

a small piece of platinum, of about

No. 38 gauge, was carefully burnished over the end of root and band, and adjacent gum tissue as represented on the model, extending from a point just a little anterior to the labial margin to a point about two-tenths of an inch posterior to the lingual surface of the band, and laterally from the central incisor to the cuspid. To this piece of platinum, in position on the model, was adjusted the two facings previously backed, the three pieces held together with sticky cement, and invested in an investment of asbestos and plaster. When the investment had become hard, the small piece of platinum, which had been allowed to extend lingually beyond the band, was carefully turned forward against the backings, and the whole soldered with 24 karat gold. After this had been done, the piece presented the appearance shown in



Fig. 3.



Fig. 4.



Fig. 5.

Fig. 3. It was then re-invested, but on the opposite side, leaving the entire anterior or labial aspect exposed; the space between the facings

and the small platinum plate was filled with "Close" body and gum enamel, and baked in two heatings by means of the small furnaces recently placed upon the market.

The next step consisted in again adjusting the baked pieces to the band, fastening band and enameled facings to each other, removing from the model, investing as for an ordinary crown, and soldering band to backings and the small platinum plate

which supports the gum enamel. The appearance of the posterior surface is presented in Fig 4; the anterior surface in Fig. 5.

The piece is now completed, with the exception of placing in position in the mouth. This is done in the usual manner, similar to that of setting a single tooth, and need not be described. When in position, the appearance is well shown in Fig. 6, except that the line of union between gum enamel and the natural gum tissue is less distinct, and scarcely noticeable to the casual observer.



Fig. 6.

The case presented is not an unique one, but it is believed that the treatment is unique. 1st, in that a band alone is used to support the facings and gum enamel upon the root without the addition of a pin. The writer claiming that a band of a certain degree of stiffness, if properly fitted, will give sufficient strength for the retention of the two teeth. 2nd, in the application of a gold band to such an appliance instead of one of platinum. The reason for such application is that the coin gold band, in the writer's estimation, can more easily be adapted to the root, will be more rigid, is less apt to stretch in fitting, can be given a smoother surface, and in case of recession, which may occur, will be less disagreeable in appearance.

The peculiar difficulties encountered were due to the closeness of the articulation, which permitted only partial backings on the facings, and to the thinness of the gum enamel, made necessary by the peculiar position of the root, which inclined backward and upward.

ALUMINUM HINTS.

BY W. H. STEELE, FOREST CITY, IA.

I AGREE with Dr. Haskell, that aluminum is an excellent substitute for rubber; and my experience proves it to be far superior, in every way for either full, or partial dentures.

The aluminum plate used must be *absolutely pure*, and must be worked so as to keep it pure during the entire process.

If the plate contains the slightest traces of iron, or silica, it

is unfit for dental purposes. The die should be covered with thin, tough India tissue, during the process of swaging, and a couple of thicknesses folded over the plate, to keep it from coming in contact with the metal of the counter.

Do not use salt, or anything of the kind in the investment; and do not have zinc in the boiler when vulcanizing the rubber attachments.

HARD DEPOSITS WITHIN THE PULP CHAMBER.*

BY S. B. DEWEY, M.D.; D.D.S., CLEVELAND, O.

DEPOSITS of calcic material in the pulp chamber are frequently met by practitioners treating many pulps, and may be found in both normal and pathological conditions. Not many years ago some of the better men in the profession worked diligently to induce deposits of secondary dentine as protection to pulps exposed or nearly so from decay, hoping by so doing to prolong the life of the pulp indefinitely. We hope before the paper closes to show the futility of the effort.

In speaking of these formations we will only consider such as are most frequently met by the practitioner, and whose history has been most definitely traced, leaving out those erratic growths such as dentinal tumors so rarely met.

First, let us consider deposits of calco-globulin, which are found associated with inflammation in many cases. They contain the same elements as the pulp-nodule but are soft; they are always found in the inflamed portion near the point of exposure just beneath the layer of odontoblasts, while the pulp-nodule is found in any part of the pulp tissue, and are extremely hard. The conditions necessary for the deposition of those bodies are albumen and lime salts in solution and an excess of carbonic acid. Now let us see what condition of the pulp that frequently occurs favors these formations. Albumen and lime salts may always be found in the blood in a state of solution and when we have a passive hyperæmia of the pulp, which means the veins of the pulp are overcharged with blood, hence venous congestion—blood with a great portion of carbon di-oxide, we may expect these formations, provided it is not excessive in degree. Hyperæmias that

* Read before the Northern Ohio Dental Society, at Akron, May, 1893.

result in low grade of inflammations nearly always induce these deposits. The pulp in performing its normal sensory function, its response to thermal change, is very liable to be kept in a constant state of congestion whereby the deposit of lime salts is induced. The pulp nodule we said might be found in any part of the pulp tissue, oftenest in the coronal portion at or near the junction of the root portion. They are irregular masses without structural form, usually very clear and transparent. They are not calcifications of the pulp tissue, but in the midst of the tissue and must not be confounded with calcific degenerations of the pulp where the whole tissue is impregnated with lime salts. Dr. Black claims that whatever may be the circumstances attending the formation of the pulp-nodules, after they are once formed they seem to do no injury. They are found in pulps otherwise perfectly normal with tissues unchanged and performing their normal functions. They may occur of such size at or near the junction of the root portion as to interfere with circulation and thus cause degeneration. They are more often found in teeth of middle and old age than in the young.

Teeth very hard in structure have them more abundantly than those of loose structure. The principal cause inducing their formation, may be named abrasion and caries. Any circumstances that may expose the dentinal tubuli to irritation seem to favor their formation. The teeth so affected in the same mouth are not the only ones containing the pulp-nodules, but those perfectly sound will be found to contain quite as many. Any irritant making an impression upon the sensory nerve of a tooth may produce results that will be evident in all of the teeth of that individual.

Secondary dentine, a new growth caused by some abnormal condition of or injury to the tooth. This is always deposited on the wall of the pulp chamber reducing its size. Care must be taken to distinguish between it and the normal growth of dentine. In the young the pulp chamber is very large and decreases up to a certain time. This growth is continuous with the general structure of the dentine without a line of demarkation so long as the length of the dental tubuli increases in a normal manner, but when new growth is excited by abnormal conditions there is generally a departure from the normal, which plainly defines it from the original pulp chamber, this departure from

the normal varying greatly in the different cases. It may be a different direction of the tubules or a less number. The sudden decrease in the number of tubules may be the only distinguishing feature. Generally there is a marked difference in the color of the new structure, by which it can be readily distinguished with the unaided eye. We see this in teeth worn by abrasion so as to expose the original pulp chamber, the new tissue is seen as a clear yellow spot.

The extent to which secondary dentine may be deposited is a question to which there are different opinions. Many holding that it may vary in quantity up to complete obliteration of the pulp chamber. As compared with the size of the pulp cavity this deposit is greater in the single rooted teeth than in the molars; it does not often extend in the root portion, if it does it is confined to the orifice of the root canal, the opening beyond being of usual or normal size. Also, if there be any difference, the deposit in molars is greater on the floor and roof of the pulp chamber and least on anterior and posterior walls.

This constricting of the orifice of the root canal is often so great as to interfere with the passing of the finest broach, but by enlarging the entrance we will find no difficulty unless the case is complicated with other hard formations than secondary dentine. Deposits of secondary dentine caused by abrasion is not confined to the teeth abraded, but those not worn are affected in nearly the same degree as those actually subjected to the wear.

Growths of secondary dentine excited by caries present features entirely different from that excited by abrasion. In abrasion we found that the secondary deposits are very evenly distributed over the inner walls of the pulp cavity, while in that excited by caries we find it confined to that part of the pulp chamber opposite the fibrils irritated, throwing out a protection to the pulp against the advancing decay. The structure of the secondary dentine deposited as a protection against decay presents nearly the same characteristics as from abraded surfaces. First, a lessening of the number of tubules with deflection of their direction to the clear deposit of lime salts without structure, which indicates degeneration and final destruction of the whole pulp tissue. Of course all decayed teeth do not show formations of secondary dentine. It will be found only in those dense teeth where the decay progresses very slowly. It is only continued

irritation for a long time that can induce such formations ; and it will be found more pronounced in teeth well nourished where lime salts are abundantly found in the blood.

Calcifications of the tissues of the pulp will, upon examination, show traces of some part of the tissues undergoing calcification. They have certain characteristics which distinguish them from the pulp-nodule with which they may be associated. They do not present the rough irregular surface of the nodule, but rather elongated, smooth surfaces. The presence of a few pulp-nodules has very little significance as far as the future health of the pulp is concerned. We find no degeneration of the tissues of the pulp associated with them ; but tissue calcification is always associated with degeneration of the uncalcified tissue of the pulp. We may find pulp-nodules in tissue undergoing tissue calcification, and may be included in these calcifications. Once formed they do not disappear and afterwards may be connected with any diseased condition that may befall the organ. The size and form of tissue calcifications vary greatly. They may be large enough to fill the pulp chamber or only minute bodies here and there in the mass of pulp tissue. They probably form very slowly, having their beginning in many centers, then uniting as they enlarge.

Cylindrical calcification occurring only in the root canal and connected with the most marked degeneration of the whole organ. It occurs at all ages—most frequently in middle life, in people who have suffered much from abrasion and decay.

The tissue removed from the canals and rolled between the fingers has a gritty feel as though it contained sand, and will bend and retain the curved position like soft wire. Dr. Black does not think these cylinders ever run together in a solid mass, but become jointed by having distinct fibers running from the end of one cylinder to another. This form of calcification does not appear alone, but is found associated with any or all of the forms mentioned.

To sum up, we might state that the deposits of calco-globulin and pulp-nodules may be found in normal pulps and after formed denote no pathological significance, although they may be found connected with other and abnormal conditions ; and all deposits of secondary dentine, or the calcifying of the tissues of the pulp are the result of undue impressions made upon the sensory organ of the tooth which excites the pulp to renewed functional activity

and must sooner or later result in complete destruction of the organ. That the irritation that induces calcific deposits in the pulp chamber and within the pulp tissue, must be long continued and not excessive. If excessive, the pulp is destroyed by strangulation before the extra deposits can be formed. Hence it will be found that these changes take place during chronic diseases of the pulp, rather than the acute.

A STRANGE CASE.

BY D. GENESE, BALTIMORE, MD.

J. W. M——, age 45, lost large filling from central incisor and abscess followed. Was treated for six weeks by country practitioners, who failed to effect a cure.

Being troubled by suppuration and pain and getting impatient, the patient whittled a piece of white pine and thrust through the root opening. Fistula cured, pain ceased, and he presented himself here several months after for refilling. Getting above history, was in some doubt upon the matter and advised a temporary filling. It is now six months since, all appearance of fistula gone and no pain. Tooth firm, oxyphosphate intact, and advise its remaining.

Did not remove pine point at time of refilling.

DENTAL DOTS.

BY D. V. BEACOCK, BROCKVILLE, CAN.

ANY dentist can stain and gild artificial teeth, by using the proper tube colors, such as are used by china decorators. A small furnace or even a good blow-pipe may be used.

Resin powdered fine and sprinkled on a fresh cut or wound and wrapped in a clean rag dipped in cold water, will prevent inflammation and cause it to heal kindly.

Powdered resin can be used in some cases for filling the roots of teeth, by working into the root and moisten or dissolve with alcohol, it is antiseptic and insoluble in the mouth.

Resin is very useful in the dental office for many things such, as putting around the necks of teeth to keep the rubber dam from slipping, also for keeping the belts doing the same on the engine and laboratory lathe.

Pasteur asserts that no bacteria are to be found in the human blood when it is in a healthy and normal condition. Bacteria act upon animals by means of the substances which they secrete. The intensity of the chemical action is proportioned to the quantity of chemical substances produced.

Cut off enough from the tube of your Shaw engine (if you use one) to allow the shaft to run, say three-quarters of an inch further through, this will enable you to put on a small square edged stone for sharpening drills, chisels, etc., also a small wire brush to clean burs.

Take a common drop-tube or glass pipette, run it through a cork into any suitable sized bottle; this makes a handy drop-bottle for using certain kinds of liquids.

Where there is any portion of a crown left, from the second bicuspid back, it is a good plan to use a platinum band and fill with amalgam, or a band of German silver may be substituted in some cases when a patient is not able to pay for more expensive material, and anxious to save the tooth.

WORLD'S COLUMBIAN DENTAL CONGRESS.

(Special Report for THE OHIO DENTAL JOURNAL, by Mrs. J. M. Walker and assistants.)

Continued from page 543.

WEDNESDAY AUGUST 16.—THIRD DAY.—*General Session.*

THE general session of the Congress was called to order on third day of the Congress, at 12 m. by the President, Dr. Shepard.

Drs. Godon and Ronnet of France, and Dr. Capon of Canada, were introduced as representatives of their respective countries. After brief responses by these gentlemen, a paper by Dr. W. D. Miller, Berlin, Germany, was read. An abstract of Dr. Miller's paper follows.

The paper was entitled :

CONCERNING VARIOUS METHODS ADVOCATED FOR OBTAINING THE NECESSITY OF EXTRACTING DEVITALIZED TOOTH-PULPS.

Dr. Miller spoke of the comparative ease with which the pulp is removed and the root canal filled in the incisors and cuspids, and said: But when we extend this treatment to the bicuspids and molars, the labor and expense put it beyond the reach of the

great majority of the human race, and the method is not always successful. It will consequently be a great boon if some means or methods can be devised which will render unnecessary the removing of the pulp and filling the root canals of molars.

Dr. Miller then presented briefly the methods devised by Witzel, Baume and Herbst, the latter as put forth by its author and as modified by Bödecker, and summarized their advantages and disadvantages. Continuing, he said:

I have for a long time felt that the solution of the problem was to be sought for in the direction pointed out by Witzel, except that our efforts should be directed not to retaining the vitality of the root-stumps, but to preventing their subsequent decomposition by impregnating them with a suitable antiseptic. I am convinced that the success of the impregnation method depends, to a very great extent, upon the character of the antiseptic employed, and upon its chemical action upon the pulp apart from its antiseptic action.

After enumerating the essential qualities necessary to such an antiseptic, he said that, as the result of over five hundred experiments he had divided the different dental antiseptics now in use into three groups:

1. Those possessing in a high degree the power of imparting aniseptic qualities to root-pulps, such as cyanide of mercury, bichlorid of mercury, diaphtherin, sulfate of copper, salicylate of mercury, oil of cinnamon, ortho-kresol, carbolic acid, trichlorophenol, chlorid of zinc.

2. Those of doubtful value: Thymol, salicylic acid, eugenol, campho-phenique, hydronaphthol, *A* and *B* naphthol, acetic-tartrate, of aluminum and some essential oils, resorcin, thallin, sulfo-carbolate of zinc, oil of birch, iodid of sodium, nitrate of sodium, etc.

3. Those nearly or quite worthless: Iodoform, basic anilin coloring matters, borax, boracic acid, dermatol, euophen, chlorid of lime, peroxid of hydrogen, sozoiodol salts, iodol, tincture of iodine, spirits of camphor, naphthalin, etc.

He then gave the results of a series of practical tests with the bichlorid of mercury, in between four and five hundred cases.

The following formulas were given, the combination being used in the form of small tablets:

1. Sublimate, 0.01 gram:
Boracic acid, 0.02 grams.

2. Sublimate, 0.01 ;
Common salt, 0.01.
3. Sublimate, 0.0075 gram ;
Thymol, 0.0075 “
4. Sublimate, 0.005 gram ;
Thymol, - 0.005 “
Tannin, 0.005 “
5. Cyanide of mercury, 0.0075 gram ;
Thymol, 0.0075 “

Also the 6, salicylate of mercury in the same form.

In the use of these tablets, the pulp being devitalized, the pulp-chamber thoroughly opened and cleansed, and the tablet applied and slightly crushed with an amalgam plugger, moistened with water and covered with a layer of tin or gold foil, and the amalgam or cement filling immediately inserted.

The formula No. 1 and 2 were abandoned, severe pain following their application in about thirty per cent. of the cases.

In No. 3, the thymol prevents the sublimate being so rapidly absorbed, besides giving a greater permanency to the application, by reducing its solubility. Very seldom, so far, has pain followed the use of these tablets, while experiments out of the mouth show that they still possess sufficient penetrating power.

No. 4 does not penetrate as rapidly as No. 3, and discolours the tooth more.

Of No. 6. he says : This I think deserving of a trial. Its sparing solubility justifies the belief that its action will be more permanent than that of sublimate. The sulfate of copper may be used in pure form, but it naturally causes serious discoloration of the tooth at the neck, and is also, I fear, too soluble to give permanent results, in pure form.

He continued : More recently, I have directed my experiments toward the discovery of some substance which possesses the desired qualities without discoloring the tooth. Thus far I have obtained the best results from diaphtherin (oxychinaseptol), an antiseptic recently introduced by Emmerich. It may be applied in pure form. Among liquid antiseptics, the oil of cinnamon takes the first place, and I have much faith in the power to conserve the dead pulp. Like all the liquids, however, it is difficult to apply, and has, besides, the disagreeable quality of discoloring the tooth yellowish-brown. The combination which I have chiefly employed

is that of sublimate and thymol. (I have not had opportunity to sufficiently test the others in practice, though I am now using, by way of experiment, the salicylate, and, to some extent, the cyanide of mercury.) It has been employed at the Dental Institute of the University of Berlin in over two hundred cases. Of these, only one failure has come to my knowledge.

Dr. Frank Abbott gave his method of treating teeth with dead pulps, as follows :

He said, I never depend upon the application of an antiseptic in the roots of teeth, but upon a material which I force in and around such, with which is combined an antiseptic strong enough to answer the purpose, and virtually mummify all the material that is left in the canals of the tooth by its action. It surrounds and covers it over, and whatever portion of the pulp is left behind, is penetrated by the action of the chlorid of zinc and bichlorid of mercury that is mixed with it. Of course, if the pulps die, they die of their own accord.

I treat them all in one general way. That way is to open the pulp-chamber as carefully as I can, so that I may cleanse it thoroughly of every particle and get thoroughly into all the root-canals. I then, with a very fine gold-pointed syringe, use a 1 in 10,000 solution of bichlorid of mercury—a grain of bichlorid of mercury in twenty ounces of water—and syringe out these canals just as thoroughly as I can; I then with a broach or small instrument penetrate into the canals as far as I can go, stir up the contents, and then wash again, repeating this until I am pretty sure that everything is clean, so that the substance coming out of the tooth as it strikes a white napkin will show a white, clean color instead of staining as when the canal is filled with dead material. When it is washed thoroughly clean I fill with oxychlorid of zinc, in which I put a drop of a solution of 1 in 1000 of bichlorid of mercury, thus combining the antiseptic properties of the bichlorid of mercury and the penetrating and antiseptic properties of the chlorid of zinc and oxid of zinc.

This is the material that mummifies or holds this substance that is left in the roots of the teeth, leaving it in a condition to give no trouble; and it may astonish some of you to know that instead of opening a tooth and treating it day after day for a week or more, I open a tooth and fill it at the same sitting always, unless I have periosteal irritation,—soreness of the tooth as I touch

it. The crown of the tooth is filled with gold or any substance that I choose to use, of course, and I dismiss the patient after painting the gums carefully over with a solution of concentrated tincture of aconite root and tincture of iodine. That I always do before my patient leaves the chair. It is a powerful counter-irritant, and does the work of relieving the pressure around the root of the tooth. This to me is the simplest, easiest, and most quiet way of getting along with that kind of teeth.

A paper on Oral Pathology, by Dr. R. Finley Hunt, Washington, D. C., was read.

ORAL PATHOLOGY.

The paper was a brief treatise on but one of the many pathological conditions to which the oral organs are subject. It is that pathological condition of the oral mucous membrane and subjacent tissues commonly known as the "rubber-disease," or "rubber sore mouth."

Though quite a number of dentists deny the existence of this disease as being produced by the wearing of rubber plates, *per se*, yet the concordant testimony of members of the profession of the last and present generation seem to establish beyond controversy not only its existence, but its existence as a specific disease produced by a specific cause,—viz: the wearing of rubber plates in direct contact with the mucous membrane.

This testimony, obtained from the records of dental societies and associations, and from dental journals commencing about the year 1866—*i. e.*, soon after dental rubber plates came into use—identifies the pathological condition now under examination as a specific disease with distinct symptoms and characteristics, and does establish beyond controversy the fact that it is caused by wearing vulcanized rubber in direct, constant and adhesive contact with the mucous membrane in the mouth.

From the same evidence may be deduced its symptoms, stages and effects as follows: A low order of vitality in the parts covered by the plates; a peculiar pallor of the same; irritation, swelling, redness, inflammation; congested, engorged, hyperemic condition; granulated masses like a strawberry, red, purple, scarlet, soft and spongy; half the arch filled with a spongy mass; blood oozing from the diseased parts; turgidity of the vessels; roof of the mouth like half-decayed raw beef cut

across the grain; suppurating, discharging condition, ulceration; pus extending from the folds; sanguino-purulent fluid constantly exuding from the apertures in the palate over the necrosed bone; sensitiveness so obtunded that no pain is felt, or in other cases, a burning, drawing, feverish sensation; lines of inflammation extending to the throat, causing disagreeable tickling sensation, and annoying cough; bronchial affections, chronic catarrh; sloughing of the soft parts; in some cases death.

A cure may be effected and a recurrence of the disease prevented in three ways, viz: by discarding altogether the rubber plate; by substituting for it a plate of gold, platinum, or even silver; and by interposing permanently between the rubber and mucous membrane a foil or thin sheet of metal. The range of metals that have been found successful in relieving and curing this disease is wide,—as gold, platinum, silver, tin and aluminum. The requisites most effective in the foil used are, as shown by experience,—purity, cohesiveness, and a permanent union with the rubber. Gold, as at present prepared, best meets these requirements.

SECTION IV—THERAPEUTICS AND MATERIA MEDICA.

The discussion of the subject of local anesthesia by the use of cocain was continued.

Dr. Hewitt said: I advocate the use of cocain daily in every dental office. Every time that you pass a gilling twine around tooth to carry the rubber dam up high enough to pass the cavities, you inflict pain. You have no right to do that. Whenever you put a rubber dam clamp on the tooth without first obtunding the sensitiveness, you are negligent of the first duty of the dentist to his patrons.

There are ways in which painlessness may be acquired in burring sensitive dentine, in cutting down on to the live pulp, in amputating the crown of the live tooth, in amputating exostosis of the jaw, in amputating a tumor that may be situated upon the tongue, in performing any operation upon the mouth with the patient perfectly conscious, able to open his mouth upon request, to spit out the blood when it is required and absolutely without pain.

He then gave the following formula for local application, which he has named "Compound Cocain Pigment:"

Atropin, one-tenth of a grain.

Stropanthin, one-fifth of a grain.

Hydrochlorate of cocain, one hundred and twenty grains.

Hydrate of naphthol, ten grains.

Chloroform, two drachms.

Oil of cassia, two drachms.

Glycerin, one drachm.

Atropin to guard against the toxic effects of the cocain; stropanthin, the best known heart-tonic in existence; naphthol as an antiseptic. The glycerin is simply a solvent to hold in solution the one hundred and twenty grains of hydrate of cocain together with the oils of the mixture, preventing precipitation.

Dr. Rhein protested vigorously against the recommendation of the universal use of cocain, a dangerous toxic drug, and said: I feel sorry for the gentleman that can't adjust the rubber clamp painlessly. The application of cocain is useless unless it is introduced hypodermically. A mere application of the drug superficially on the mucous membrane, beyond the faith which you may instil into the patient or the delicate manner of your manipulation, will do no good; for that class of neurasthenic patients whose systems are not anemic, whose hearts are in that condition that they can stand the use of cocain, the careful injection hypodermically of a good amount of cocain, the hydrochlorate, before putting a clamp very deeply or before the immediate separation of the teeth by a separator, or in the extraction of a live pulp or a root, is a very valuable adjunct to dentistry, and one that can be recommended to every man who has sufficient knowledge of therapeutics to be enabled to know the proper drug that ought to be used as an antidote, or to take care of his patient if any ill effects follow.

Dr. Templeton described some cases in which he had seen the good results resulting from Dr. Hewitt's use of his "pigment." He said that the operator first applied to the gums a solution of chloral hydrate and naphthol for the purpose of absorbing and washing away the mucous on the gums, so that the pigment would take effect, and after an application of the cocain preparation, the application of the rubber dam produced no pain.

Dr. Lowry said: One point that I think is one of the most important features of hypodermic injection of cocain is, never inject cocain into the muscular tissue; if you do it is carried into

the circulation *en masse* to the heart, and you produce heart-excitation and sometimes nausea. But if you inject the cocain into the hard gum-tissue, being very careful that your needle is so located as to diffuse the cocain slowly in such a way that you can see the gum whitening gradually and the white surface gradually enlarging, you will rarely ever have any nausea.

Dr. Bigelow uses cocain upon the gingival margin in the application of the rubber dam in very difficult cavities, applied by means of a very small pledget of cotton dampened with water, sometimes with alcohol, dipped in the pulverized cocain and applied to the gingival margin.

Dr. N. S. Hoff said: I do not believe in using prescriptions containing supposed cocain antidotes, such as we have had presented here to-day. This prescription makes, as I figured, a twenty per cent solution of cocain, or more. The effects of cocain are two—general and local. It is the local effect that we want, and not the general effect. But this prescription provides for counteracting the toxic effects of the cocain; it pretends to make provision against that in the use of sulphate of atropia and stropanthin; these are both heart stimulants, or rather they stimulate the nerves that control the action of the heart. But the doses are too small for the amount of cocain that is used. This is a dangerous prescription, even used locally on the gums.

You all know the histological structure of the gum tissues, how slowly it will take up medicine; it absorbs slowly, yet at the same time it will absorb large percentages of cocain preparations, especially when such agents as chloroform and glycerin are used in connection with them. The cocain will be taken into the circulation and readily brought to the nerve centers, and toxic effects will be produced. There is nothing at all in this prescription that is corrective. There is nothing that will hinder the dissipation of this drug or limit its dissipation in the tissues to which it is applied, and it will be taken up by the blood-circulation of the gums and carried directly into the blood-circulation throughout the entire system.

DR. RHEIN: I want to correct a wrong impression which my words seem to have left. I do not question for an instant the ability to produce local anesthesia by any such prescription as that; the object of my remarks was to disparage the universal use of cocain, and I say that any such doctrine as that is

damnable. I never intended to leave the impression that I disparaged the possibility of it producing the results. I am in the same position with the gentleman who said he had used cocain for six years. I have used it since it was first brought into New York city, and I use it every day; and I use it as he says he uses it. I prepare a fresh solution with distilled water, and only use it during that day, and I believe it is the safest way. But I use it with discrimination. That is the point I wish to impress. The gentleman stated he used it universally, and that is the dangerous point in any such advice.

A spirited *dialogue* between Drs. Mills and Rhein followed these remarks.

DR. HEWITT: In reply to my friend, Dr. Rhein, when I advised the use of cocain I did it advisedly, knowing I was talking to men of education, of refinement and careful thought. Have I got to go into the minutiae and tell them that they must not give a neurasthenic patient cocain, or a fat man might be a proper subject to use it upon, or that a delicate woman shall not have it, or a little child, and so on? I took it for granted that these men know something. I had only a few minutes in which to present this. I would like, if I had time, to tell you how I use it, and I defy my young friend to prove that the application of it is damnable. I ask you as humanitarians, as men of science, to think of this, read upon the subject, and write to me and ask any questions that you please, and I will answer them with the greatest of pleasure.

On motion the paper of Hedwig Bensow Stahlberg, of Helsingfors, Finland, was read by the chairman.

ETHYL CHLORID AS A LOCAL ANESTHETIC.

I desire to offer a few suggestions in relation to an anesthetic that has been highly spoken of in our profession.

After a brief review of authorities on the use of this agent, the writer continued—

In the use of ethyl chlorid, I apply it directly on the gingiva and to the immediate neighborhood of the root or roots of the tooth to be extracted. I cover the other, teeth in the same jaw and the inside of the mouth, as well as the tongue, with prepared cotton, because I find that the cotton lies more closely to the surrounding parts than a napkin, as proposed by Prof. Carlson.

This cotton covering should be carefully made, so that it at the same time prevents the saliva reaching the locality to be anesthetized and also prevents the patient from swallowing any of the agent.

Just as in using other local anesthetic agents, the time required to secure insensibility is very variable. Some patients require only about one gram; others three or four grams, and exceptionally even more. In one case I found that ten grams were necessary.

These circumstances, however, are unimportant, because the agent is very harmless, and it is so cheap that the poorest patient can afford to have it used.

At the conclusion of this paper, the paper read by Dr. W. C. Davis on Tuesday (see page 531, November issue) was discussed in connection with the paper on Ethyl Chlorid.

Dr. LOWRY said: I want to speak of one point made by Dr. Davis, of Nebraska, which I think is a very good one, that the tubuli of the dentine are not occupied by a nerve-filament; the nerve must be nourished by blood circulation. The tubuli of the dentine are too small for the free circulation of the red blood-corpuscles, the red corpuscles being three-ten-thousandths of an inch, or one third the size. Consequently there can be no blood-nutrition to that nerve. Secondly, he says it is a protoplasm. I think that is a good point. The tubuli are occupied by protoplasm. His idea is to apply warm alcohol to the cavity of the tooth, and by its evaporation extract the protoplasm, thereby disposing of the conducting medium or the medium that conducts the sensation from your instrument to the nerve or the pulp proper.

I have used warm alcohol for probably eighteen months or two years almost to the exclusion of anything else for obtunding the sensitive dentine. I knew it was of benefit, though I did not know why, but this idea of the essayist has brought it clearly to my mind what the alcohol did do, by its action upon the dentine protoplasm.

So far as the chlorid of ethyl mentioned in the last paper is concerned in its application for the obtunding of sensitive dentine, I think it is the most painful thing that was ever administered or put in a cavity. I do not think its effect is so painful upon the gum, but to place it within a cavity for the obtunding of sensi-

tive dentine it will inflict more pain than the excavation of the cavity without the use of an obtundent.

Dr. Rhein spoke of the superiority of chlorid of methyl over the chlorid of ethyl. He said chlorid of ethyl is so different from the chlorid of methyl that it takes about a hundred minutes in the use of chlorid of ethyl to produce by its evaporation a reduction of temperature equivalent to between zero and ten degrees above zero, Fahrenheit, while chlorid of methyl by its greater volatility in the course of five seconds will produce a reduction of temperature equivalent to seventy degrees below zero—it will freeze the mercury in the bulb of the thermometer in five seconds. Now the danger of it is the possible effect on the pulp of the tooth, and it must not be overlooked. In all the length of time I have used it, I have not to my knowledge had any bad effect on the pulp apart from some slight irritation of the pulp following in some cases where I was impelled, more through a feeling of investigation than otherwise, to use it in a deeper cavity than I would use it to-day; but in those very sensitive labial and buccal cavities where we really find the greatest difficulty in commencing to excavate, or where we want to build up the tooth that is very sensitive, in fact all cavities that are remote from the pulp, the most infinitesimal amount of the fluid sprayed from the cylinder direct on the tooth will produce an immediate insensibility of the part if it is used with some little intelligence, but all you require is a very small effect. If you allow it to come out in a minute stream in the way in which the chlorid of ethyl comes out, you can entirely remove the pulp by its means.

A paper by Dr. D. Caracatsanis, of Athens, Greece, was then read.

TREATMENT OF ALVEOLAR PYORRHEA.

Passing over the symptoms and causes of this disease the writer said he would speak only of its treatment.

From the point of view of the severity, I consider the malady as separable into four degrees, as facilitating the application of the treatment which I recommend.

I regard the disease as of the first degree when the suppuration has only extended to the neck of the tooth, the alveolo-dental periosteum being unaffected. The cure of this stage is extremely

easy by the following treatment: In the first place, the tartar or other irritating deposits are to be completely removed; the gums are to be scarified as thoroughly as possible with a steel instrument wrapped in cotton, which should as a preliminary be dipped in a 1 to 1000 solution of sublimate. This is at once followed by an application having the following composition:

Tincture of iodine,

Tincture of aconite, equal quantities.

The patient is directed to cleanse the mouth thrice daily with a brush and the following antiseptic lotion:

Tincture of thyme, 2 grams;

“ “ eucalyptus, 1 gram;

“ “ benzoin, 4 grams;

“ “ mint, 120 grams;

“ “ lavender, 2 grams;

“ “ rosemary, 1 gram;

cologne, 2 grams;

“ “ anise, 4 grams.

Sig.—One teaspoonful in half a glass of water.

Have the patient return at the end of a month; he will be entirely well if he has followed directions.

Second degree; suppuration having extended to the upper portion of the cement. Treatment the same as for the first degree, only it will be necessary to have the patient return several times for scarification and painting of the gums. The cure will be complete at the end of two or three months.

Third degree; suppuration involves the whole of the cement and the periosteum, but the teeth have not given way entirely.

The visits must be more numerous, and the strength of the sublimate solution is to be increased to 2 to 1000. After scarifying the gums by means of a bistoury, introduce with a Pravaz syringe the sublimate solution between the tooth and the gum, and at once apply the iodine and aconite preparation.

If there be inflammation and the patient suffers pain, after removing the tartar I order emollients to relieve the pain after scarifying and employing the sublimate. Cure is not yet obtained in this degree of the malady. I continue the treatment until all suppuration has ceased, and the teeth have become almost immovable. It is possible to get these patients to masticate with comfort who have had the severest suffering, and in

whom the slightest pressure occasioned almost unbearable pain.

As to the fourth degree, which I define to exist when the teeth are altogether loose, the same treatment is to be employed, although a satisfactory result is rarely obtained. I have had some half-cures for a time, but it is only in persons with abundant patience; usually the patient becomes wearied before experiencing the slightest improvement.

This paper was passed without discussion.

SECTION VI—OPERATIVE DENTISTRY.

Dr. Emil Schreier, of Vienna, Austria read a paper on

THE TREATMENT OF INFECTED ROOT-CANALS WITH KALIUM-NATRIUM.

He said, I entertain the hope that the subject of my paper is of such importance for daily practice that it cannot fail to arouse the interest of a large proportion of those present. It is my purpose to lay before you a procedure for the antiseptic treatment of infected root canals, which from its great simplicity and ease of application, as well as on account of the many excellent results which have been obtained therewith, deserves consideration from this distinguished assembly. I refer to the method of treatment introduced by me with kalium-natrium (potassium and sodium).

When a tooth with gangrenous or necrotic pulp comes under treatment, the dentist is confronted with the task of removing as far as possible a gelatinous, slightly consistent mass from a capillary tube, and this having been accomplished to introduce into the same canal an antiseptic for purposes of disinfection. You are all aware how much time, patience and skill are necessary for this operation, and will readily recognize that the operation would be much simplified if it can be made possible to effect the transformation by the simple introduction of a nerve-needle.

My method seeks to fill the first indication by a chemical decomposition of the putrescent contents, in which the root-canal serves as a test-tube; the second indication is fulfilled in the development of a substance which is readily taken up by a nerve-needle, and sufficiently adhesive for introduction into the canal. In the root canal in question there exists a putrescent mass. This consists of water and the decomposition product of albumen, the latter consisting especially of fats and fatty acids.

These substances have been formed by the influence of bacteria, and serve as a culture-medium for the various species contained therein. If I now introduce my preparation into the canal with the needle, decomposition of the watery contents will occur, with development of a considerable amount of heat. Potassium and sodium hydroxids are formed, which in combination with the fat of the pulp, form soap. The characteristic gangrenous odor is accordingly changed into a well marked soapy smell. A portion of the alkalies possess the well-known property of rendering albuminous substances soluble. Thus any remains of tissue adherent to the walls of the canal are dissolved, the latter become macerated, and access to the dentine canaliculi is possible sooner than can be effected by any other method thus far employed. Destruction of the organic contents of these canals is now possible. You will readily understand that in consequence of such destruction the disagreeable discoloration which too frequently occurs will be absent, and that the lime-salts of the tooth proper are in no wise injuriously affected by the treatment.

The introduction of the potassium and sodium has the additional effect of destroying the bacteria, partly by the heat produced, and partly by the new products formed. The contents of the canal have been transformed into a sterile and probably antiseptic mass, and thus the development of new colonies of bacteria is prevented. Everything has thus been accomplished which precedes permanent filling of the tooth.

I hope to have the opportunity of demonstrating my method on the living subject, and you will see how the transmitted mass travels in the direction of least resistance—that is into the orifice of the canal next the pulp chamber, and wells up alongside of the needle.

It is scarcely necessary for me to state that my plan of treatment should only be practiced with the coffer-dam. Of course care must be exercised with the preparation. With proper care the preparation is free from all danger. I believe that I am entitled to say that the plan of treatment proposed by me is founded upon correct principles, and meets the obvious indications as regards ease and rapidity of application and certainty of result. Every practitioner is in a position by the aid of my preparation to save with rapidity, ease, and well-nigh with certainty, teeth

that have been seriously affected, and that without special preliminary preparation and without troublesome appliances. Thus the benefit of treatment of the root becomes possible for the masses.

In the discussion which followed the question was asked—

Can you regulate the heat by the strength of the chemical preparation which you use?

DR. SCHRIER: No, not at all. I can only regulate it by taking more or less of the preparation. If you take too much of the preparation it is dangerous.

DR. CUSTER: How do you wash the canals after using the preparation?

DR. SCHRIER: After using the preparation the canal is filled with a soapy matter as the result of the chemical action. I wash the canals with water, or I take some weak solution of carbolic acid and water, so as to be sure not to carry into the canal any bacteria. For getting out all the particles of soapy matter, I wrap a few fibers of cotton around the broach, dampen it with water, and then revolve it rapidly in the canal, because the soapy matter is soluble in water.

DR. A. H. BROCKWAY, Brooklyn, N. Y.: I have had a little experience with this preparation, and I suppose that experience will be valuable to those who have not used it. Some weeks ago I got the preparation and have used it in quite a number of cases, and I must say I am extremely pleased with the results so far.

DR. REESE: I have used the preparation since May in about a dozen cases, and the patient did not know anything about the heat developed by the chemical action. In removing the soapy contents of the canal I have used peroxid of hydrogen; after drying the canal with cotton, put in the treatment with some oil and leave it there for a week, and then I find that the canals have a cleaner feeling than by using any other method.

DR. REID: What is the proportion of sodium and potassium?

DR. SCHRIER: It is not a fixed quantity, but usually I use two parts of sodium and one of potassium, prepared in such a manner that it will adhere to the nerve-broach.

DR. W. B. AMES: I would like to know in what sort of cases this preparation would be used. Would it be used in a case when the pulp had been devitalized a day or two, or when the pulp was devitalized two or three weeks ago?

DR. SCHRIER: I treat it immediately after destroying the pulp if there is insensibility. Any hemorrhage will be stopped by the introduction of the preparation.

DR. AMES: Would this combination of sodium and potassium act the same on the blood as pulp?

DR. SCHRIER: It would.

DR. AMES: I want to know whether in Dr. Schrier's experience there is much after-inflammation in a few days?

DR. SCHRIER: No. There is no soreness following the application. If a patient presents himself with a sore tooth I proceed in the same manner as I do with the others.

DR. ARNOLD: Would Dr. Schrier's method of treatment be different from what he has explained if there had been absorption in the apex of the tooth, or if a blind abscess was present?

DR. SCHRIER: I don't make any change in the treatment; I always find the fistulous openings closing after three or four days.

DR. FLORESTAN AGUILAR: I have used this preparation in all sorts of cases where the pulp had been devitalized for a long time, and also in cases where the pulp has been devitalized only for two or three days; and I have used it in teeth which had abscesses, and my experience has almost always been satisfactory. In very few cases I have met with failure, but I did not blame the preparation. I think everybody has some failures in treating root canals. I am very much pleased with the result of this preparation of sodium and potassium. I have got a little further than Dr. Schreirer in the employment of this preparation; he says he waits two or three days. I have had as good results by filling the canals immediately after cleaning them. I am always very careful in removing the rubber dam, because if you let a little drop of the preparation fall on the cheek or gums it is apt to leave a mark on the face, which is very painful to the patient.

Dr. W. B. Ames, Chicago, Ill., next read a paper on

OXYPHOSPHATES.

He said that in the present study he would consider the oxyphosphate cements from a physical rather than a chemical standpoint, for the reason that there is less difference chemically than in their physical characteristics.

In all the cements known to him, with two exceptions, the

acid is intended to be either pure ortho-phosphoric or an ortho-phosphoric acid solution of alkaline phosphates. Extensive endeavors to utilize pyro-phosphoric acid for the purpose, had led him to consider it impracticable and unreliable. An occasional specimen will be all that could be desired, but the impossibility of duplicating it with any degree of exactness precludes any reliance on the variety of acid.

The alkaline phosphates are all soluble in water, and these are the only phosphates which will remain in solution in phosphoric acid for any considerable time. All metallic phosphates in such solution will in time recrystallize partly or wholly, which precludes their use for purpose of modifying the working properties of cements. The object accomplished by the addition of phosphates to phosphoric acid is in cement to retard the setting and render it less caustic.

Among cement powders there is less difference chemically than among the liquids, but physically they differ very radically. The basis of all light-colored cement powders is oxid of zinc. This material can exist under many physical conditions, and yet be simply ZnO . He expressed the belief that a thoroughly crystalline zinc oxid is much better adapted to the requirements of an ideal oxyphosphate cement than the vitrified amorphous oxid, and gave the results of using the liquids and powders of various cements conjointly, as follows:

I have found that I can get better results by using a crystalline oxid with many of the adulterated liquids than by using the oxid that is furnished with them. Then with the group of cements in which unadulterated ortho-phosphoric acid is furnished I find that I can use the powders and liquids of all conjointly, getting almost any working quality desired. For instance, the powder of the Harvard is thoroughly crystalline, and of a very fine state of division. With this powder and the liquid of Justi's lapidescent, I have a better cement for crown or inlay setting than by using either of these cements as furnished. This combination can be worked quite stiff, and yet have a smooth plasticity that facilitates the operation, with satisfactory setting qualities. The powder of the lapidescent is less crystalline than that of the Harvard, and the liquid of the Harvard does not give as satisfactory hardening as some of the others of its type. The combination of Harvard liquid and Ames powder gives more

satisfactory crystallization than Harvard entire. The Ames liquid and Harvard powder works nicely, does not set as quickly as Ames, but much quicker than Harvard.

The lapidescent liquid and Ames powder makes a good mixture, setting a little quicker than laquidescent liquid and Harvard powder. For fillings, where great resistance against wear is required, I have nothing at my command in which I have more faith than the Ames crystalline, having a quick and medium slow variety at my command. A more definite crystallization takes place in its hardening than with most other cements. The surface will take on a glassy appearance in the mouth that gives promise of great wearing qualities. It also comes nearer a submarine or hydraulic cement than those which are termed "hydraulic," and yet are furnished with the caution to "have the cavity perfectly dry and keep on the rubber until thoroughly hard."

Both the paper and the discussion rather limited the value of the cements to their use in crown and bridge-work.

Dr. McKELLOPS said, I am a little astonished at the gentleman who read the paper that he did not allude to oxyphosphate as a filling-material. I look upon oxyphosphate as a great thing in filling children's teeth or teeth of persons where gold work will not stand. Take a young child, and you can nurse its teeth with oxyphosphates until a time when you can fill with gold, and you will not find any decay where oxyphosphate filling is put in properly.

I can save teeth in children by the use of oxyphosphate where everything else fails. The fillings wear out, some in one year, some in three or four or five, but they can be replaced. I believe I have one in my mouth that has been there twenty years.

A paper by Dr. Caracatsanis, of Athens, Greece, was read as follows:

ON THE TREATMENT OF DENTAL CARIES IN THE SECOND, THIRD, AND FOURTH DEGREES.

He spoke of the importance of temporary fillings in these cases and said: For the last four years I have proceeded in the following manner to my entire satisfaction.

2d Degree. Cavity is cleansed, cauterized with absolute

alcohol, and immediately filled. If the dentine is very sensitive, I coat the cavity (after well washing and drying) with a liquid preparation of gutta-percha dissolved in chloroform or oil of cajuput. I then at once fill the cavity with simple gutta-percha, which I leave in place for eight days. If the sensitiveness has disappeared at the end of that time, I put in the permanent filling. If the contrary is the case I remove the gutta-percha and repeat the operation, which procedure may be repeated until the fourth time, for cases with extreme sensibility.

3d Degree. Remove the carious margin, take away the remains of food and softened dentine, carefully wash the cavity with a warm antiseptic solution, and employ the following two preparations :

1. Oil of cloves, 3 grams ;
Oil of Peppermint, 2 grams ;
Chloroform, 5 grams ;
Acid phenique; 1 ; collodion, 2 ; cocain, 1.
2. Metallic Cobalt, 5 parts ;
Arsenious acid, 1 part.

Saturate a cotton tampon with the first preparation and then with the second, place at the orifice of the pulp without pressure, cover with a dressing of cotton in order to protect the neighboring parts and those cauterized. These dressings will have to be changed several times before the nerve is destroyed. Their action is slow, but painless. Then carefully wash the canals. If these are very small, I don't try to open them,—a useless attempt, since it is never possible to do so as far as the apex, and moreover, there is a risk of perforating the root. After carefully washing and drying the cavity, I introduce by means of an insufflator some powdered boracic acid. At the end of eight days, if everything goes well, I remove the temporary filling and fill the opening of the canals as far as possible with liquid gutta-percha and also the nerve canals. If the canals are large, the liquid may be introduced either by the aid of a tampon or by means of a little syringe. The gutta-percha is covered and also left in its place for eight days. If, during this time, inflammation occurs, I remove the temporary fillings and recommence treatment until the cure is complete.

I never fill a tooth of the third degree even if the canals are widely open, before introducing, after the destruction of the pulp, dressings consist of aromatic oils.

For teeth of the fourth degree, whether with alveolar abscess or not, I employ all the disinfectants and antiseptics. I never give up all hope of filling until a number of fittings for the practice of complete antisepsis. On first filling, in place of boracic acid, I introduce iodoform by means of an insufflator. Temporary fillings are especially valuable in this degree.

Conclusion.—According to my experience and statistics, the following class of cases should never be filled permanently: First, in a tooth of the second degree, the dentine of which is too sensitive, the filling with a chloroform base is the best therapeutic. Second, the best possibility is in retaining the pulp in the teeth of the third degree, and the necessity of putting the teeth to the test of a temporary filling. A tooth of the fourth degree cannot be disinfected and filled at one sitting, and temporary filling is above all indispensable for this degree.

Dr. L. Caracatsanis read the following paper:

ON THE POSSIBILITY OF AVOIDING METALLIC CLASPS IN PARTIAL
DENTURES OF VULCANITE.

According to the method of the writer almost any small plate may be kept in place almost without any clasp. He said:

I place a single incisor in the upper jaw with the greatest ease with a plate of small dimensions and without any clasp, by means of white caoutchouc. To insert two teeth, I take advantage of a vacant space produced by removal of a tooth or of a natural space between two teeth for fastening the extremities of the caoutchouc instead of using clasps. With points of support which have seemed insignificant I have been able to anchor a denture of eight or ten teeth very solidly, the plate being the width of a centimeter or a centimeter and a half at most.

I have seen abuses of the clasp method, as for instance of a partial upper denture carrying by means of metal clasps the second right bicuspid, the right lateral incisor, the left central incisor, left cuspid, and the second left bicuspid. At the end of a year the teeth were entirely loosened, the tooth-structure worn away by the friction of the metal, and the patient suffered intense pain in the teeth from changes of temperature. I replaced the piece with one without a clasp, taking care to avoid the slightest pressure on the loosened teeth, and securing the retention of the denture in place solely by rubber clasps affixed as the preceding

ones had been to the first molars. The piece kept its place as well as its predecessor, and the plate was no larger. The advantages to be derived from this plan, which concern not only the patient but also the dentist, are economy of material, since metal is avoided; economy of time, and the facility of making a light plate which causes no inconvenience for the patient.

The fact that Dr. Caracatsanis could not understand English, and very few of those present understood any French made the discussion very difficult.

(To be continued.)

ALL SORTS.

Oliver (R. T.) on a Method of Root Filling.—At the Indiana State Dental Society, Dr. Oliver said: Nearly everybody uses gutta-percha points dipped in chloro-percha to fill roots, but I have noticed a great many bad results. I have lately been in the habit of taking a hypodermic syringe, inserting the needle up into the root and filling the canal with chloroform. Then, after dipping the gutta-percha point in chloroform, I insert it into the canal and force it home while the canal is still wet with chloroform.

Testing Gold and Silver.—"Use pure nitric acid. To test, file the metal clean to make sure that you are testing the metal itself and not a plating or covering of any sort. Silver under the action of the acid goes to a peculiar grey color. If brass, it will turn green, German silver will do the same, nickel will go black. Gold, pure, 22ct. or 18ct., will be unaffected, and the acid will stand like water, 15ct. will turn very slightly brown if the acid is pressed well in with the bare finger, 12ct. will go the same without any pressing in, 9ct. goes a decided brown at once.—*English Mechanic*.

On the Etiology of Acute Suppurations.—N. A. Stehagoleff has derived the following conclusions from his experiments: 1. Suppuration may be caused by chemical substances, without the presence of any micro-organisms. 2. In suppurations induced by microbes the pyogenic products are derived from chemical substances most probably contained within the microbe cells. 3. Bacterial or non-bacterial suppuration is always followed by a leucocytus inflammation, which ordinarily precedes the formation of an abscess. 4. The presence of micro-organisms can always be demonstrated in all cases of acute suppurations.

Buck (F. E.) on A New Method of Cutting off Teeth Where they are to be Replaced by Crowns.—Take for instance a lateral

incisor three-sixteenths of an inch in diameter, one-half that distance from the margin of the gum, drill directly through the tooth with a small size spear point drill, being careful that the drill comes out on the lingual surface of the tooth at the same distance from the gum as where it entered. Now take the next size larger drill and enlarge the hole already made, and so on until the tooth is entirely cut off.

The end of the root will be left perfectly smooth and ready for the crown.

This method does away with the disagreeable jar, noise and slipping which is always complained of by the patient where a bur or facer is used.—*Off. & Lab.*

Hallett (T. L.) on A Durable Pivot Tooth.—A pivot tooth which, for durability I consider second to none, is made by using silver for pivot and backing, and soldering with silver solder, and setting with Weston's cement mixed thin and amalgam soft, about equal parts, and finishing part exposed to fluids of the mouth with amalgam only. The amalgam unites with silver only sufficient to make it all like one piece of metal, while the cement setting quickly avoids any danger of displacement of the tooth. With that setting, gold, of course, must be strictly avoided as backing or pivot.—*Dom. Jour.*

Moore (E. C.) Treatment of Broken Impressions.—That portion of the impression coming away with the tray is placed on a blotting pad, and the pieces as they are removed are placed by the side of the tray; those belonging to the right side of the mouth at the right of the tray, and those of the left to the left. This blotting pad, you will see, answers a three-fold purpose: of a nice clean piece of paper upon which to lay the impressions, to keep the instrument bracket clean, and something on which to carry the impression to the laboratory; and it also assists in the hardening of the plaster by absorbing the moisture, so that in a few minutes it may be handled without fear of breaking in the process of putting together. If none present have tried this blotting pad, I strongly recommend you to try it. If these precautions are taken, you can easily see how confusion is avoided in placing the detached pieces back on the impression.—*Extract The Dental Journal.*

Beacock (D. V.) Dental Dots.—Copper amalgam heater, to make: Take a large sized steel thimble, or ferrule, such as is used on the end of a walking-stick, wind a piece of wire round it, twist the projecting ends for a handle. This makes as good a heater as any you pay seventy-five cents for; I have used one for seven years.

A piece of suitable sized piano wire, bent and nicely fitted to the palatine or lingual surfaces of teeth, on a plaster model of either jaw,

each end of the wire being bent outward at right angles, these ends secured by simply pressing gutta-percha between the first and second, or second and third molars, makes a very handy and easily constructed appliance for expanding either arch, causing little inconvenience to the wearer, and only takes a few minutes to construct.

In applying the rubber dam to labial cavities under the gum, take a small-sized sewing needle, at the distance of, say, three-quarters of an inch from the point, and bend it into the form of an S, the point of the needle forming the long leg, stick the point into the neck of the tooth below the rubber dam, just above the edge of the cavity, lift the upper edge of dam over the eye end of the needle, and the resiliency of the rubber will keep the needle in place, and the cavity dry. It is far ahead of any clamp for the above purpose. To prevent the eye of the needle penetrating the dam, put a little bead of shellac on the end.—*Extract Dom. Jour.*

Shields (N. T.) on A Method of Determining Curved Root Canals.—The way to determine the curve of a root is this: If you take a No. 5 fine Donaldson nerve-canal cleanser and pass it up a buccal root, and it simply goes half an inch, you may know it has not reached the apex; we know there are few buccal roots that are not more than half an inch long. Then you are confronted directly with a crooked root. If the instrument does not go three-quarters of an inch before meeting an obstruction, and if after a gently vigorous turn it does not go further, you know that you have a curved root: you could not turn the instrument very much before it would catch in the curve, and you would know there was something wrong. But what is the direction of that curve? The root is liable to turn in any direction; some branch out, others come together. How do you know which way it turns? Insert a No. 5 instrument, and it catches a little bit at a slight turn. The instrument being round, you can turn it without danger of breaking it off. When you turn it, hold the instrument between your thumb and forefinger very tightly, and remove it. When the point is visible, you find a slight turn in the end of the instrument, and that turn will be exactly in the direction of the curve of the root, if you have held the instrument firmly. Then put the instrument into the root, and use an upward and downward motion, and the instrument enters into the curve; press it gently in the direction of the curve, and you will find the instrument going farther and farther up. That curve is determined most positively by the instrument catching when you first begin to turn it. When you find it catching, turn it gently, and, holding the instrument firmly, remove it, and you will see the direction of the curve. Putting it back into the root in the same position, and moving it gently up and down, it will go farther and farther.—*Extract Cosmos.*

Steele (W. H.) on A Method of Obtaining a Correct Articulation.—It is not only essential, but absolutely necessary, that we should have a perfectly natural close of the mouth, and a correct articulation, when constructing an artificial denture; otherwise it will be worse than useless to the wearer. It is almost impossible to get a natural close of the mouth if one depends on a first bite (or any number of bites) and wax rims only. I have followed the method given here for ten years without failure. For illustration: We will take a full upper. Get a perfect impression, make a cast and pattern plate as usual. Try the plate in the mouth and trim till it fits easily to place; remove and put on it a rim of softened wax; have just sufficient to receive the remaining natural lower teeth. Put the plate and wax in the mouth; have the patient throw back the head, swallow, and close the teeth into the wax; remove the bite, pour the teeth, and mount in an articulator; that will allow of the bite being changed in all directions; when the plaster is set open up and remove the wax; now mount the six anterior teeth in the correct positions and try in the mouth; have the patient laugh, talk, and smile, getting the different expressions; if the teeth are not correctly mounted, reset and try till they are right. Now build up with wax on each side where the lower bicuspid will strike, also extending behind the upper cuspids, so the lower cuspids will touch it; build the wax high enough so the lower bicuspid will bed the cusps in when the mouth is closed; smooth in the top and put in the mouth. After the plate has been in position a few minutes tell the patient to swallow, at the same gently close the mouth till the lower ones dent into the wax; remove the plate and put it on the cast. Now close the articulator carefully; if the lower bicuspid and cuspids close exactly into their proper places in the wax there is no need of a change, but if they do not, try the plate in the mouth till *sure* of having corrected the bite; then loosen the set screws of the articulator, adjust the plaster teeth in their proper places in the wax, tighten the screws.—*Items.*

Staples (G. S.) on Modelling Compound Impressions.—I have made the subject of taking impressions with modelling compound a special study for a number of years, until I have fully satisfied myself that there is no longer a place, or even an excuse, for the use of plaster for taking impressions under any circumstances. But within the last twelve months I have discovered a new use for the compound which I think will be greatly appreciated by those who are doing crown and bridge-work. I know most men think they can get a very good adaptation of bands under the free margin of the gum, but it would surprise anyone who will first adapt the band to the root in the mouth as is usually done, then take an impression of the root (as I do) and get a

metal cast and try them, and see how far from an adaptation it is. The way I proceed is this: Take No. 3 modelling compound or No. 2 that has been used a few times, and with Mellott's No. 20 impression cup, with the bottom cut out so as to insert a finger, proceed to take an impression. Trim your root in the proper shape, and if there is a tooth on each side, place a small piece of celluloid (a piece of collar, for instance) between the root of the tooth or teeth: then fill the cup level full with the heated compound and press to place; then with ice water cool outer edges, and then, while holding cup steady, press the compound up in center of cup with the finger or a round instrument; cool thoroughly with ice water; withdraw when you have a most perfect impression of the root as far up as the free margin of the gum extends. Now dip impression in ice water, have some Mellott's metal ready, wipe the impression perfectly dry and dust with soapstone, slip on rubber ring and pour metal as cold as it will flow. Have a syringe full of ice water ready, and as soon as the metal is poured throw on ice water with syringe till you can drop it into ice water, when you will find you have the most perfect cast-metal that can be made. You can then adapt your crown or band to the cast, so that when adjusted it will be the most complete adaptation, and so do away with the annoyance and pain to the patient.

—*Western Dental Journal.*

Edmunds (J. M.) on Fitting Crowns.—After the root has been prepared, the apical foramen sealed, the canal enlarged to receive the dowel pin, and the crown selected, the next important step is fitting the crown. The method I consider best is original with me, based on considerable experience and very carefully tested.

The cervical portion of the root must be at least one-sixteenth of an inch above the free margin of the gum to permit of proper shaping. The labial surface must first be ground to a bevel or semi-wedge shape, from the pulp canal to the margin of the gum.

The dowel pin is then inserted, and the crown or facing, ground to fit the ground surface of the root. The facing must then be backed with platinum foil and fastened to the dowel pin with hard wax. The formula is—(white wax 8 oz., gum dammar 4 oz., resin 1 dram., melt the wax, then add the dammar, stir occasionally until all the dammar is dissolved, then add the resin.) A half ferrule of 22 K. plate is then made to fit the palatal surface of the root closely. This may also be attached with hard wax to the dowel pin. The entire structure can now be removed and is ready to imbed in plaster of paris and marble dust, pulverized pumice stone, sand or asbestos, one part of plaster to two of the latter ingredients. There should be no sharp corners, or square edges on the half ferrule; they must be removed forming a neat curve from the centre

of the summit on the palatal surface, to the base at the point of union, on either side, with the porcelain face. The square edges must be beveled very thin, and then burnished that no point of irritation remains. Neither must the ferrule be inserted far beneath the free margin of the gum, or destructive inflammation of the periosteum will certainly ensue. It is necessary to try the crown, after it is finished several times, pressing it well up to its place, noting every change in the color of the tissue, and removing any encroaching materials with the file; then again polishing and burnishing before inserting. It is always best to have the ferrule extend as little as possible under the gum, and the part that does so extend should be thin and fit very closely to the root.—*Extract Record.*

Crenshaw (Wm.) on A Method of Setting Crowns and Bridges.—In the setting of bridges, particularly of all gold work, I have found within the past twelve months a method, new to me, which so greatly facilitates and simplifies the work that I give it here, even at the risk of making this paper too long, and also at the risk of going over something that may be adopted and used by others.

Accurate fitting and adjustment of the bridge, no less than the single crown, determines its usefulness and its success as a thing of practical value. The most exquisitely wrought work poorly fitted upon the teeth that must carry the bridge cannot be expected to yield to the possessor that satisfaction that would be experienced were it poorly made and well fitted.

After having reduced the pier teeth to proper form, and after having constructed the cap crowns and the dummies to be suspended between them, the matter of occluding these with the opposing teeth comes next. Models obtained of the pier teeth and the space or spaces articulated are valuable only as approximating the occlusion, and helpful mainly in determining the size, width, depth, etc., of the crowns to be employed. Otherwise this portion of the work might be disposed with.

But with these crowns in position on the articulated model they may be transferred, cemented together with wax, to the mouth and set in position. We should never be surprised at the twisting into position which we must observe when the teeth are closed. Seeing that each tooth is in its proper position, a cup adapted to this work may be filled with a half-and-half mixture of marble dust and plaster and water strongly primed with a saturated solution of sulphate of potash and inverted over the crowns, which in from two to three minutes may be removed, the teeth having exact relation to each other as they must in the mouth, and which, when removed from the mouth are invested ready for soldering.

In placing the crowns in position on the model the dummies, or suspended ones, should be bolstered up—supported upon a lump of wax

resting on the model, gum in the mouth—to prevent the teeth from sinking and thus deranging the occlusion. When the investment in this manner done is removed from the mouth, the bolster of wax may be removed, and the under surfaces of the teeth are exposed ready for soldering.

In removing porcelain face bridges the same method may be employed. The shaping of the roots to hold this class of work I hold should be the same as that for any single crown.

In the setting porcelain crowns using pins in the root I regard the barbing of the pins very desirable, but not to be cut deep.

Absolute dryness in the root opening, the cutting of recess pockets on the inner wall of the root, and the carrying of the cement well up into the canal are points that must be well executed.

The hot air syringe, the nozzle of which is introduced well up the root and a number of blasts in this manner blown up the canal, is of great value. The serum exudations and blood must be prevented from entering even the orifice of the root.

A small-shanked nerve canal plugger with a shred or so of cotton wrapped upon it and moistened with the phosphoric acid, though only moistened and not wet, is an admirable means through which to carry up the cement.—*Extract Dental Headlight.*

Van Fossen (C. L.) Removable Bridge Work.—The anterior anchorages for a removable bridge are constructed as follows: Prepare the root for a Richmond crown, allowing the palatine surface to extend as far out of the gum as possible; dress off the enamel surface and band and cap. The next consideration is the pin and pin sheath. In my experiments with pins, beginning with the split-clasp metal pin and using the round, square and triangular pin, I have finally come to the conclusion that the oblong tapering pin as used in the Logan crown has advantages possessed by none other. After making the pin, trim out the canal, so as to allow it to extend into the root as far as possible and fit loosely. We next cover the pin accurately with platinum, not under 26 gauge, always investing before soldering this sheath, inasmuch as the least particle of solder on the inner surface will not allow it go to its place. Next drilling a hole in the cap of the root protection, place the pin and pin sheath through the cap in the root and cement with sticky wax. Carefully remove, invest and solder; finish up and set to place. A Richmond crown is now constructed to accurately fit this root covering.

In the posterior anchorages, we proceed to dress off the enamel of the tooth in the ordinary manner of constructing a gold cap, with the exception that we taper from the gum margin to the grinding surface, and grinding off sufficient of the cusps to allow of a solid cap being

placed over same, banding it in the ordinary manner and capping flat with platinum 28 gauge, soldering it with either pure gold or twenty-two karat, we have our tooth completed to the finishing point. It is now set to place with cement. I have neglected to state that these caps should be made as nearly perpendicular as possible, unless it is a case where one anchor may be placed on first and the other drawn over to its place.

When a very extensive case is to be constructed of two anchors (for example, two molar teeth remaining in the upper arch and we wish to replace the full complement of teeth,) it is advisable to destroy the nerve in the teeth, fill the roots and combine the pin anchor in the center of the tooth and also the telescope crown: the pin in this case being made much heavier than in the anterior. Furthermore, I believe, and will put into trial practice at once, that if the outer telescope band be made of clasp material, better success would be attained in more durable work.

Again, in order to thoroughly protect the root or the tooth, the root or tooth protection should be made to extend thoroughly under the gum, and the telescope or outer band to barely reach the gum margin. It would not in any case do to allow the outer band to reach under the gum, as its removal would keep up a constant irritation.

Our anchors to place, an accurate impression is now taken of the mouth and articulation. From this point we are allowed a number of points of procedure. If the shrinkage of the gum and alveoli has been slight, requiring short teeth, the whole piece may be of gold, making a narrow saddle for the gum, arranging gum teeth and soldering to the saddle. If the absorption has been quite extensive, the gum may be saddled with gold and the teeth attached with rubber. A method still easier is to solder a bar between the anchors, or off, as the case may be, and vulcanize teeth to the bar. Oftentimes it becomes necessary to extend around natural teeth to which we do not anchor. My method here is to take a plaster impression, or, what is better, one in Teague's impression compound, and flow in fusible alloy. Burnishing platinum to the backs of the teeth to fit accurately, place a bar of heavy platinum or English pin metal over the same and flow 22-karat plate over the same, dressing up to make the bar about 1-16 of an inch in width and soldering to the two ends of the bridge. When the case is completed, I file out the bar sufficiently to keep it from impinging on the teeth, believing that if it lies close to the teeth all the time, it will subsequently cause decay. By this method we are enabled to use a first inferior bicuspid on either side and replace the posterior teeth in a very satisfactory manner for the patient, covering one of the most difficult cases in prosthetic dentistry.

In my judgment, if removable bridge or plate work, as I have explained it, is used with that discretion necessary in all operations, it

will be found to fill a place in dentistry that has heretofore always been a stumbling-block for nearly all members of the profession.—*Extract Western Journal.*

Edmunds (J. M.) on a Method of Constructing Removable Bridge-work.—I will now try to describe my method of construction of a movable case of bridge-work, the principles of which are entirely original with me.

The preparation of the teeth is most important. It is so in all crown- and bridge-work, particularly so in movable bridge-work.

Special care must be taken that the tooth or root is slightly conical in shape from the neck to the grinding surface. Enough of the grinding surface is removed to permit the insertion of two caps. After the tooth has been shaped a strip of copper thirty-four U. S. standing gauge, a little wider than the tooth may be placed around the prepared tooth, which may be tightly drawn into place with a pair of flat nose pliers. The copper is now removed and trimmed to the marks indicated by the pliers, which will give the requisite size of the gold plate to make the ferrule or band. The next step is to force the ferrule over the tooth, pressing and burnishing as necessary to properly adapt the ferrule to the form of the tooth.

When the ferrule has reached the gum, the encroachment of its square edges will be indicated by a change of color in the tissue, from pink to white. Now mark the ferrule with an excavator around the festoon of the gum. The ferrule must now be removed and trimmed to where it is marked. The edges should be filed and burnished before replacing it. This process must be continued until every part of the tooth is neatly covered, and slightly extending under the free margin of the gum. The edges must be beveled and burnished so there are no rough irritating points or edges remaining.

A neat impresson may be taken by placing a small piece of wax on the grinding surface, pressing it firmly into place and allowing it to remain until cool. Then with a scaler or other suitable instrument remove the ferrule and wax together. Run the ferrule full of plaster and marble dust, cover it completely, except the wax, which can be removed as soon as the plaster is set.

After the wax is removed, make a paper pattern, by pressing a piece of paper over the imbedded ferrule, cutting it out as indicated by the impressed line. A piece of platinum foil is cut to this pattern and pressed into the open end of the ferrule, which may have sufficient 18 k. gold solder flown over it to make a cap.

This completed, the cap is ready to be finished and cemented to the prepared tooth. Another cap is now to be made to telescope over the one

in position. The ferrule first being made, not quite extending to the gum. It must project at least one thirty-second of an inch above the surface. The wax may be used as I have previously directed, differing only in having the patient close their teeth upon the wax, thus securing an impression of the antagonizing molars or bicusps. From this impression run a plaster model which can be duplicated in sand, and cast in zinc, making a die to strike up the cusps, for the movable or outside ferrule. I find many advantages in making cusps in this way, from very thin 22 k. gold plate. After swaging the cusps and trimming them to fit the ferrule, 20 k. solder may be flown in the depression of the under side, making them solid. The cusps are then to be soldered to the ferrule, making a beautiful cap. One of the greatest advantages of this method of making cusps is that an operator can secure more perfect occlusion of the teeth than can be obtained in any other way. Because if the cusps are made from an impression of an antagonizing tooth, they are a facsimile of the natural organs, and will perfectly articulate with the same. The details of this operation must be followed out with other teeth selected for attachment.

Supposing that two teeth, a right superior third molar, and a right superior first bicuspid, were capped and crowns made to telescope as above described, the crowns should be then placed over the caps, care being taken that proper occlusion had been obtained, an impression should be taken in the following manner: Mix the plaster to about the consistency of putty, pack this well around the crown and fill the spaces between them well. Now have the patient close the mouth, observing that the proper articulation has been secured. By these means the bite and impression is taken at the same time. After the plaster has set, request the patient to open the mouth, which will generally break the impression. This is most always done. The pieces are then laid carefully aside until dry, when they may be put together with silex or wax, at the option of the operator. The impression should now be varnished with shellac varnish, the formula is—gum shellac, 3 oz.; alcohol, 1 pint. This makes a thick varnish, which is well adapted to this work. As the impression is now put together with the gold crowns imbedded in it and varnished, the next step is to place it in the articulator, mixing the plaster medium and filling both sides at once, which makes an excellent model to work on. Next grind and fit the selected crowns to the model. Also grind the cusps off, leaving a flat surface, and back them with platinum foil, allowing the foil to extend over the flat surface of the crown about one-eighth of an inch. Now wax these to the gold crowns with hard wax, and place the gold cusps, made in the manner described, in proper position, over the porcelain facings, in such a manner as to

secure perfect occlusion between the gold cusps and cusps of the natural teeth. This being completed, the piece may be removed from the articulator, and imbedded in a matrix, made by mixing one part of plaster to two parts of marble dust. Then as soon as this sets, the wax can be removed and the matrix filled with 20 k. solder and covered with a piece of charcoal, that it may cool slowly.

After it is cooled it is ready for finishing and insertion. The advantages of this method will be readily appreciated by those who take into consideration the cleanliness and accessibility of the piece in case of accident when repair is needed.—*Extract Record.*

EDITOR'S NOTES.

THE CUSTER ELECTRICAL CABINET.

AT the World's Columbian Dental Congress the best single exhibit was a dental cabinet, devised and constructed by Dr. L. E. Custer, of Dayton, Ohio, for his own use. At his own expense Dr. Custer took the cabinet to this meeting, not to sell, for the expense incurred in its manufacture being little less than \$1,000, placed it beyond the reach of the majority of dentists, but to freely give his ideas to any of the profession who desired them. The cabinet is a marvel of completeness, and caused exclamations of praise from every one who examined it. It is with pleasure that we present a photo-engraving of it, and a description of its arrangement for the benefit of our readers.

The cabinet is in the form of the usual dental cabinet. In the top is a provision for the separate rheostats. Just below is a recess, on the floor of which are arranged the different electrical instruments. In the bottom are two motors. The one in the middle is for running the dental engine, and the one on the left for condensing air for the warm air appliance. The space between the motors and instruments is filled with drawers. A curtain draws down so as to enclose the instruments and drawers. When released by a secret button it rises to the top of the drawers so that the instruments are not dashed upon a timid patient at once, but when one is needed, a touch to the curtain, and it rises the remaining distance.

The rheostats are so arranged that they are kept cool by a circulation of air passing up from the instruments' recess below.

Just back of the instruments is a hard rubber switch-board, upon which is a switch for each instrument. These connect with the resistance coils above.

Each instrument is connected with seven feet of conducting cord. This cord is carried in the back of the case by a weighted pulley. When drawn out for use the weight is held by a spring. When it is ready to replace, a light jerk of the cord releases the spring's grasp, and the cord is drawn in.

It is so arranged that the electrical connection is automatically made on each instrument by the mere act of taking it up for use. The instruments are placed in the order of their usefulness. On the left is an electric gold annealer; this is seen with the cord drawn out and on the bracket ready for use. The instrument is made up of a mat of platinum coils in a bed of asbestos, and the whole surmounted upon legs to prevent heating the table. A sheet of mica rests upon the platinum coils.

The second instrument is a warm air appliance; also medicated warm air if desired. Enclosed in a quarter inch rubber tube is a ten-foot coil of German silver wire. This is heated by the current, and as the air is forced over it by the small motor it arrives at the hand-piece at a temperature of from 90° to 150° Fahrenheit, at the pleasure of the operator. The required temperature is obtained in about one-half minute, at which time a thermostat automatically throws the current through a resistance coil, which prevents over-heating. Both the motor and heat in the coil are thrown in operation by taking the hand-piece up from the shelf. If it is desired to medicate the warm air for drying or medicinal purposes, provision has been made. On a shelf in the base of the cabinet are placed three wash bottles; two of them can be seen in the engraving. In the first is placed alcohol for drying, and in the second the essential oils. The third is a provisional one. The air is drawn through the fluid of any one before it reaches the motor, so that it is quite well saturated with the agent. Below and in the center of the switch-board are seen three points. The lever is the arm of a valve which brings the air motor in communication with any one of the bottles at pleasure.

The third instrument is an electric mallet. This consists of a cylinder in which are two electro magnets. The larger is hollow and allows the handle of the plugger to pass through it.



This magnet is fastened firmly, and is part of the hand-piece. The other electro-magnet somewhat smaller, by automatic make and brake of the current, plays back and forth in the handle upon the end of the plugger, which projects a very short distance through the first magnet.

The fourth instrument is an electric match. This consists of a handle and two flexible platinum points, which when brought together and released produce a spark sufficient for lighting the alcohol lamp or gas jet.

The fifth instrument is for cautery purposes and root drying. The sixth is the electric mouth mirror.

In the center of the instrument shelf is a hole in which is set a glass for warm water. This glass is surrounded by coils of German silver wire, which are used as the resistance for the engine motor, so that when the dental engine is in operation the waste heat is utilized in heating water.

In the base is an arrangement for making copper amalgam also when the engine is in operation.

The engine motor is an ordinary C & C, which runs one way. On the ends of the armature shaft is a disc or face plate, against which operate one or the other of two friction wheels. The operations of these wheels are managed by electro-magnets, so that the direction of the belt is changed almost instantly. An electric brake is also attached. These movements are managed by a movable switch-board. The belt passes up through the back of the cabinet to pulleys in the ceiling. These pulleys swing in such a manner that the cabinet may be set in any position, and the operation of the belt not interfered with.

Dr. Custer has kindly consented to exhibit this cabinet at the Ohio State Dental Society, Columbus, December 5-8.

TO OUR READERS.

WITH this issue we close Vol. XIII. of the OHIO DENTAL JOURNAL, which, in many respects, has been the best yet issued. We promised at the beginning of the year to present our readers with the best of the general information given to the profession throughout the world, and we have done so, furnishing especially practical points which are appreciated by the large majority of dentists. In glancing back over the pages of this volume, we

find more than one hundred original contributions of a scientific, theoretical and practical nature. In our "All Sorts" and "Briefs" columns there are about six hundred articles, almost exclusively practical, besides some three hundred items of interest in our "Aftermath" and other departments not included in the above. These articles, in the main, have been so condensed that while the reader has lost none of the goodness, it has enabled us to present them in less than one-fourth the space originally occupied, thus giving the reader more material in the most time-saving and readable form. That this method has been well received is attested by the letters of commendation received from time to time from subscribers, and desiring to furnish our readers with material most beneficial to them, we shall continue the JOURNAL in the same course until circumstances indicate a change. Whenever we see an opportunity for improvement it will be immediately acted upon, that the matter presented may be of the very best and most interesting.

We desire to thank our subscribers for the words of praise expressed, and hope they will not only all continue their own subscriptions, but speak a good word for the JOURNAL to their friends. We extend our heartiest wishes to all for the New Year.

NEW PUBLICATIONS.

A DICTIONARY OF MEDICAL SCIENCE, by Robley Dunglison, M. D., L.L.D., late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia. Edited by Richard J. Dunglison, A.M., M.D. New (21st) Edition, Thoroughly Revised, Greatly Enlarged and Improved, with the Pronunciation, Accentuation and Derivation of the Terms. In one magnificent imperial octavo volume of 1181 pages. Cloth, \$7.00; leather, \$8.00. Philadelphia: Lea Brothers & Co. 1893.

For sixty years Dunglison's Medical Dictionary has been the standard authority in medical terminology, and twenty-one editions have been required to meet the ever-increasing demand. In no previous editions have the changes and additions been so great. Forty-four thousand new words and phrases have been added to place the work in conformity with the most advanced

terminology of the time. The book contains a Full Explanation of the Various Subjects and Terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Bacteriology, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence, Dentistry, etc.

Everything obsolete has been excised, yet the work contains about one hundred pages more matter than its predecessor. The page has been enlarged, so that this great work is still comprised in a convenient volume. For the first time pronunciation has been introduced, being indicated by a simple and clear phonetic spelling. Derivation, an unexcelled aid to remembrance of meanings, is also thoroughly given. The full and explanatory definitions for which Dunglison has always been noted, have been expanded to include much valuable and practical information not always easily found elsewhere. Thus, under Diseases are given their symptoms and treatment; under Drugs, their properties and doses; under Poisoning, the symptoms, antidotes and treatment. Numerous tables enrich the alphabet and place an immense amount of information clearly and conveniently at hand. Examples may be found in the tables of Doses and Bacteria. It is safe to call Dunglison's Medical Dictionary an indispensable book for students, practitioners, pharmacists, dentists, and all concerned with any of the medical sciences. In giving this edition a thorough examination we find all that is claimed by the publishers, and it meets our heartiest commendation.

R. L. POLK & Co.'S DENTAL REGISTER OF THE UNITED STATES.

Comprising List of Dentists, arranged by States, giving post-office address with population and location. An index to all the dentists in the United States arranged alphabetically, etc., etc. Vol. I. R. L. Polk & Co., publishers, Detroit. 1893. Price, \$10; discount 40% to dentists, or \$6 net.

For years the dental profession has been in need of a reliable dental directory, and at last this want has been supplied by the well known firm of R. L. Polk & Co. The volume contains a full and accurate list of dentists in each State, arranged by States and Territories, and compiled alphabetically under the name of the city, town or village in which the dentist is located, giving

the population of the place. There is also an index to all the dentists, arranged alphabetically, with the number of the page on which name appears. The work contains 704 pages, and comprises the names of nearly seventeen thousand dentists practicing in the United States. Few can comprehend the vast amount of work required to compile a directory of this kind, and we doubt if anyone could have prepared it so satisfactorily as these publishers with their efficient corps of assistants and every available facility for furthering such work. Besides the list of names there is given all obtainable information regarding time and place of graduation or registration of each dentist.

At the commencement of the list of each State and Territory is a descriptive article embodying such matters as location, boundaries, extent in miles and acres, latitude and longitude, statistics regarding climate, temperature, population, etc. There is given, also, a complete list of dental societies, State boards of dental examiners, dental colleges, with names of deans and secretaries, dental journals, with names of editors and publishers, and the full text of all laws relating to the profession.

It is a valuable book of reference and should be in the library of every dentist, and in the possession of all dental societies, examining boards, colleges, dental depots and dealers in dental specialties. Sent prepaid on receipt of marked price.

BOOKS RECEIVED.

RICHARDSON'S MECHANICAL DENTISTRY. Fifth edition; thoroughly revised. P. Blakiston, Son & Co., publishers. Price, \$4.50.

BRIEFS.

— THE Turkish Government prohibits the importation and sale of secret patent medicines within its dominions.

— IODOFORM-SALOL is a solution of iodoform in melted salol, which crystallizes on cooling. It has been used by Reynier and Wall as a disinfectant for injection into fistulous processes and suppurating cavities.

— For removing a bit of gum overlapping a third molar, instead of cutting the gum away, it can be burned away with a

little trichloroacetic acid, without hemorrhage or subsequent soreness.—R. OTTOLENGUI.

—CARIES is a chemico-parasitical process, consisting of two distinctly marked stages; first, the chemical action of the fermented acids softening the inorganic matter of the teeth, second, that of dissolution of the softened dentine by bacteria.—G. NORTH.

—Do you use a spoon to mix plaster with? If so, just see how much more useful it will be if you place the bowl of the spoon on the anvil and flatten it out. It will take up dry plaster just as well, and will prove a very good spatula.—W. S. ELLIOTT, *Items*.

—To prevent leakage of vulcanizers take plaster of Paris, mix it thin and run it around the inside of the cover, and while soft screw it in place, letting it stand a short time before putting it over the heat used. This method is quick and easy to apply.—E. A. SCHILLINGER.

—IN setting gum-colored porcelain inlays, Dr. A. H. Thompson says, I do not use pink cement, but I have a little bottle of carmine which I mix until I get the tint that I want; that will enable you to more nearly approximate the color of the gum, as you know that varies considerably.

—MR. W. PROBERT, of Handsworth, Birmingham, is bringing out a new gas blowpipe to supersede the ordinary mouth blowpipe. It consists of an air-pump, which can be readily attached to a table or bench, and of a reservoir carrying the jet, which can be held in the hand or placed on a table.—*Jour. Brit. Assn.*

—IN microcidin, a compound of naphthol and sodium hydrate, we have a germicide and inhibitor of germ growth. It is ten times as powerful as boric acid. In a solution of $\frac{1}{1000}$, which is the strength for general use, it is a most excellent wash where there is a free discharge of pus, and produces no irritation of the mucous membrane.—V. A. LATHAM.

—IN regard to legal right of dentists practicing oral surgery, Dr. T. W. Brophy says: "I hold that any dentist educated within the schools of dentistry on the lines taught, is authorized under the laws of the State chartering the institution, to practice in either department and has equal rights to administer remedies, and perform surgical operations with the general surgeon."

— IODOFORM, either pure or in strong solution, has a very striking effect upon the nerve endings. It is more powerful in this respect than carbolic acid. Its effects are more lasting, and it is of great value in suppurating pulps and where sensitiveness still exists through the odontoblast cells being irritated or dying after removal of pulps by arsenic or by nerve-extractors.—V. A. LATHAM.

— THE reaming of a canal not only simplifies the operation of filling, but also opens up the ends of the tubuli, and facilitates the permeation of the dentine by antiseptic agents, the advantage of which must be admitted when a septic condition is present. Under favorable circumstances the line of the zone of cementum at the end of the root is a safe point to ream to and stop at.—N. T. SHIELDS.

— A word of caution to those using the Snow method of vulcanizing rubber. If the piece is vulcanized too long the first time, it will come out finally quite porous, and of course without elasticity and strength. In our own laboratory we get satisfactory results by vulcanizing first for 20 minutes at 320° , and for 40 minutes at the same temperature after closing the flask.—*Odontographic Jour.*

— IN bleaching teeth with pyrozone, Dr. Meeker's method is as follows: I take a little gold probe that I hammered out, attach some bibulous paper to it, and dip it in the pyrozone, put it in the cavity, and twist it around for a minute or two. I use the caustic solution, and throw on a blast of air with an air-blower for the purpose of keeping up a rapid vaporization. I keep on in that way until the tooth becomes of the requisite whiteness.

— WHEN we have succeeded in destroying the microbes in the tissues, then, and not till then, is the time to use agents which have stronger actions and coagulating properties; because at this point we can use coagulants most readily, they acting as embalmers and protecting the tissues from contact with the air and fluids of the mouth, safeguards against further inoculation of aerobic germs, and at the same time to prevent the origin and growth of anaërobic germs.—V. A. LATHAM.

— THOSE advocates who set about burnishing the band up to the root to secure a close adaptation immediately after setting

the crown are in every such case adding insult to injury, and really make matters worse. In the first place, this burnishing operation cracks up the cement under the band, and thus in this the setting is imperfect from the beginning; and in the second place, it stretches the band and so makes it larger, and a looser fit is the result.— *W. Crenshaw.*

— MICRO-ORGANISMS are present in the air, the water, and the earth. They are not only on the earth, but the upper layers of terrestrial crust are teeming with them. They are carried by the atmosphere as dust, and deposited upon the surface of all objects. They exist in vast numbers upon and in the human body. They are present with the body in life, and do not leave it in death until it is resolved into the elements. Hence there can be no doubt but they are an important factor in nature.

— I think that dental caries can be, and is, produced by a micro-organism, and is therefore contagious, and, had I the time, I could show that it is more so than many of the diseases that are guarded against. If the public could be made to understand this, we would not have our schools, colleges and asylums of all kinds crowded with human beings with mouths containing enough of these micro-organisms to infect all who breathe the contaminated air, and which is as disastrous to the teeth of those who are predisposed to the disease as the bacillus of tuberculosis is to the lungs of those who are in a condition to receive it.— *W. J. MORGAN.*

— THE fault of many a bad filling is in the frailty of some part of its wall. By pressure of the plugger, or by blows from the mallet in filling, or by after service, a check may be made in the enamel. It may not show till discolored; but it is almost sure to increase and loosen the filling, or make a break that cannot be successfully repaired. The tooth which is frail, either from thin or brittle walls, should be nearly filled with oxyphosphate, and finished with gold or alloy. But even if it is to be thus filled, it is better to break down such parts of the wall liable to become afterward defective. And yet, though we should be thus cautious not to leave such faulty walls, we should be equally careful not to cut away strong enamel that would be a protection to the filling, and prevent the unnecessary display of gold—
Editorial Items.

OUR AFTERMATH.

ATTEND the annual meeting of the Ohio State Dental Society at Columbus December 5, 6, 7, 8.

MARRIED. —Dr. Charles S. Kelsey, of Elyria, O., was married October 25th, to Miss Hattie A. Halter, of the same city.

PUMICE-STONE. A mine of pumice-stone exists on the Teneriffe Peak, of which the working was only started in 1888. The stone is found in that part of the peak called the "Canadas," at about 2,000 feet above sea-level, which has an area of some 6,000 hectares, out of the middle of which rises the highest part of the peak. The Russian consul at St Croix bought this property of the Spanish government in consideration of an annual payment for the pumice-stone working. The Russian consul has associated himself with a Belgian, and they, under the firm styled Aguilar and Valcke, commenced operations in 1888, but it was only last year that exportation was really started. At the Paris exhibition, the consul-general states, this stone obtained a silver medal, and in view of the requirements of England, France and America, he believes it will develop a trade of great importance before many years. So far the Lipari Islands have practically furnished the world's supply of this product, exporting about 100,000 tons per annum. The Teneriffe stone being recognized as of excellent quality, and its extraction being of a much more simple matter than in the Lipari Islands, it follows that the price is much less.

THE GERMAN PROFESSOR ON HYPNOTISM.—"Hybnodism," the German professor said thoughtfully, "vos a mendal disorder dot vos raging brincipally in der noosebapers. It vos a hypertrophy auf der imachination, undt der writers on mendal pheenenomons vos first attacked. You mighd call it a sort ouf writer's cramp auf der prain. Der ingrediences peen made auf a fool undt a rascal. Mix thoroughly undt set away in a cool blace. Bud one well authendicated case has been reported, undt dat vos told py a notorious liar auf France. As a defense for der lawyers to sed up in murder drians it would peen a pudding, as Schiller saidt; but its brincipal use so far alreaty has been confined to sheap novels undt skyentific makazines. Fife tousand years ago a Greek philosopher hybnodized a rooster shicken mit a straight chalk mark on der floor, undt now, in 1893, der skyentific beeples discofer dot you can hybnotize beeples auf dey aindt got as much prains as dot rooster. Nature got hard feelings towards a vacuum undt auf you aindt got any intelligences aui you own you can absorb dot from somepody else. It vos a choiyul surprise to some peeble's headts to get a mind inside auf dem py hybnodism auf dey didn't had some alreaty py natural. It's bedder, young mens, dot you cultivate some prains auf your own, aber you debend on hybnodism aber hypodermic inchections auf mendality. In der meandimes I can hybnodize dis class more expeditiously undt skimultaneously mit a glub. It's bedder you enchoy dis pecooliar phleenomens vwhile she is goin', because she vill soon go down der stream auf time pehind der plue glass, der roller skate, Koch's lymph, Keeley's gold cure, undt pig-headed canes.—From *Judge* in *National Popular Review*.



